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Modern Engine Practice

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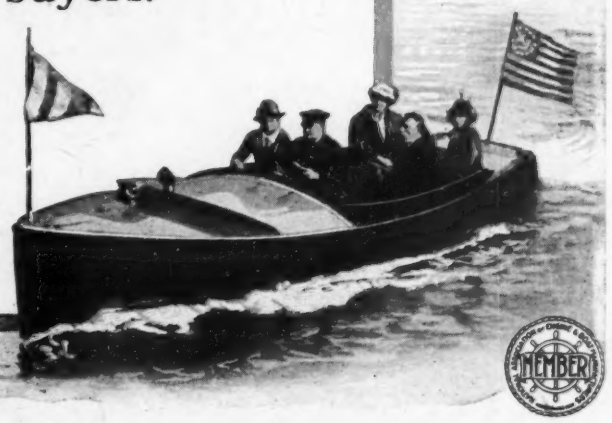
Speedway Yacht Tenders have long enjoyed the preference among careful buyers.

Two types are shown here: a 21 ft. tender that is proving increasingly popular for yachts up to 150 feet and a 35 ft. model for yachts of 200 ft. and over.

Whatever your requirements, from the Speedway line, you are always able to make a desirable selection. Remember too that a Speedway owner invariably belongs with the satisfied kind.



Gas Engine & Power Company and Charles L. Seabury & Company, Consolidated

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No. 7. Mediterranean Corsairs—14 Century.

Even today on the waters of the Mediterranean, one may note this characteristic Lateen rig which has come down from remotest antiquity essentially unchanged.

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Regular for cruising. Special for racing. Worn wherever the best is demanded. Have your sailmaker show you the name on the end of the roll.

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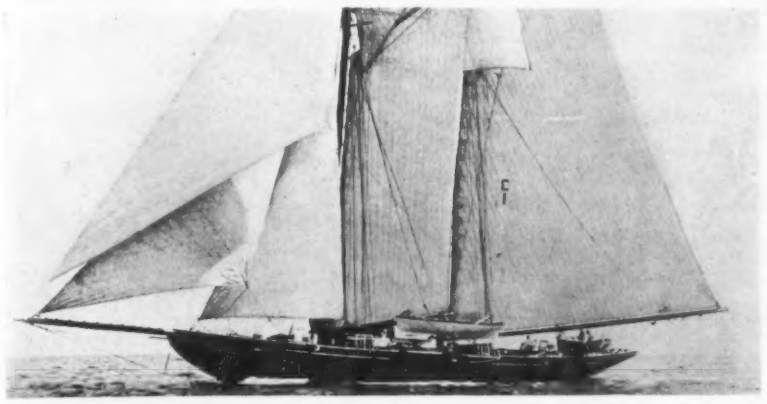
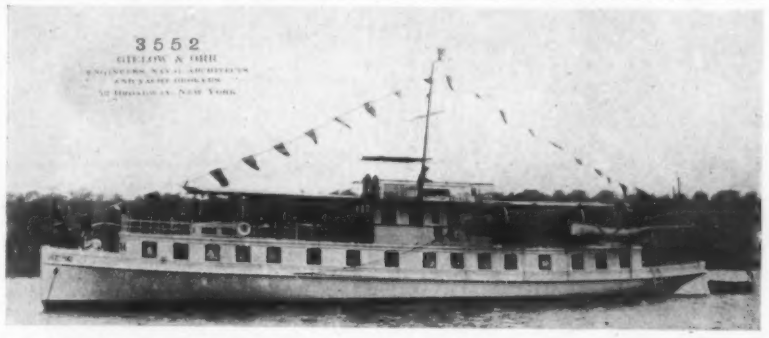
Crogie, New York

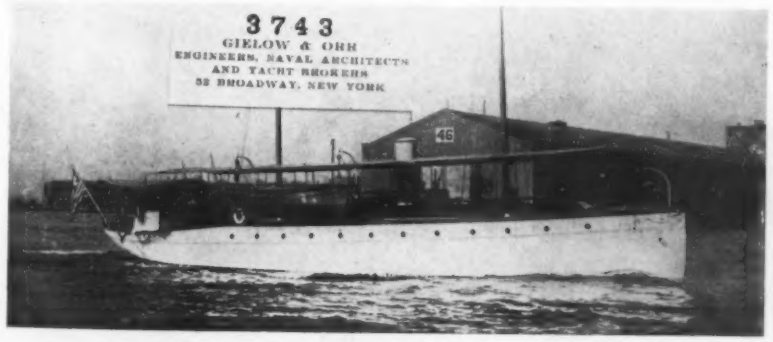
The following attractive boats are offered for sale and charter. Large number of others to select from are listed with us for sale. Yachting in Florida this Winter promises to be very active. To secure the choice Yachts early decision is advisable.



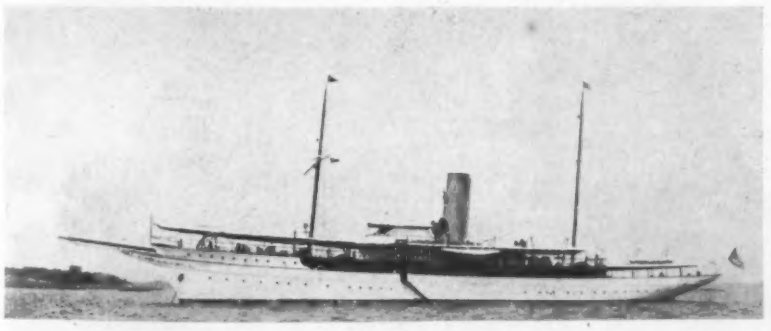
NO. 1850—FOR SALE OR CHARTER.—Flush deck auxiliary schooner 98 x 68 x 20 x 9-ft. draught. 75 H. P. Standard motor. New Ratsey sails. Excellent accommodations. Fast sailer. Reasonable.



NO. 3552—FOR SALE.—Twin screw power houseboat. Now in Florida waters. 110 x 20 x 4.9-ft. draught. Unusually fine boat for one of its kind. Speed 10 knots. Four double staterooms. 23 ft. saloon. Electric lights.

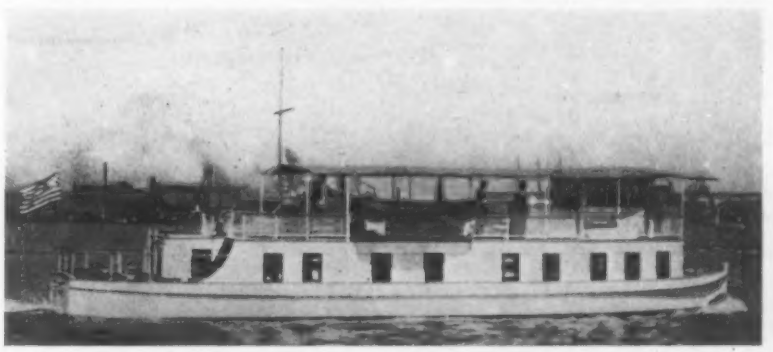


NO. 3743—FOR SALE OR CHARTER.—Now in Flordia waters. Cruising motor yacht 85 x 15.6 x 3.9-ft. draught. Six cylinder 100 H. P. motor. Good accommodations. Extra fine deck space. Excellent condition.

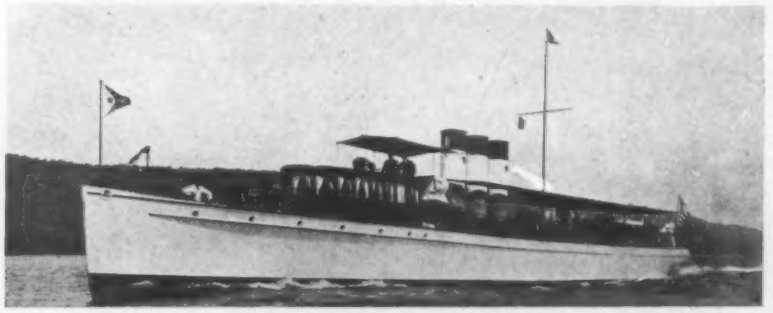


NO. 3293—FOR SALE OR CHARTER.—240ft. twin screw seagoing steam yacht. Recent build. Triple expansion engines. Two Scotch boilers. Has Lloyd's highest rating. Condition A-1 throughout.

NO. 3941—FOR CHARTER.—Now in Southern waters. Attractive twin screw 72-ft. motor yacht. Excellent deck space. Good accommodations. Speed up to 13½ miles. Fine condition throughout.



NO. 4389—FOR SALE.—Twin screw power houseboat 70 x 18.6 x 2-ft. draught. Three double staterooms. 13.6 ft. saloon. Bathroom. Electric lights. Hot water heating plant. Now in Florida waters.



NO. 4655—FOR SALE.—To close an Estate 140-ft. twin screw "express" steam yacht. Speed up to 30 miles. Excellent accommodations. Boat, machinery and equipment subject to closest inspection.

NO. 3947—FOR SALE.—50-ft. waterline auxiliary schooner 4.2-ft. draught. Electric lights. Excellent accommodations. Large cockpit. Reasonable.

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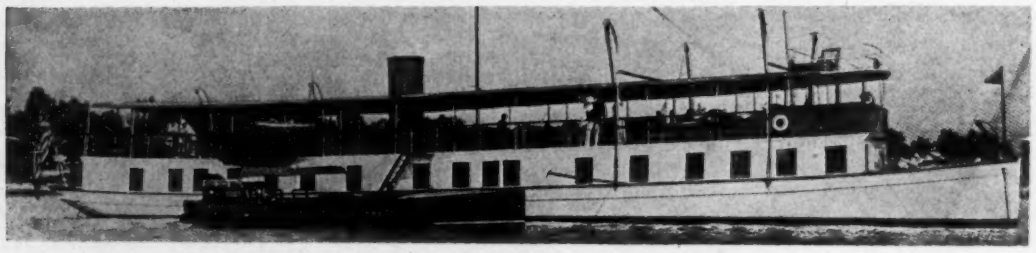
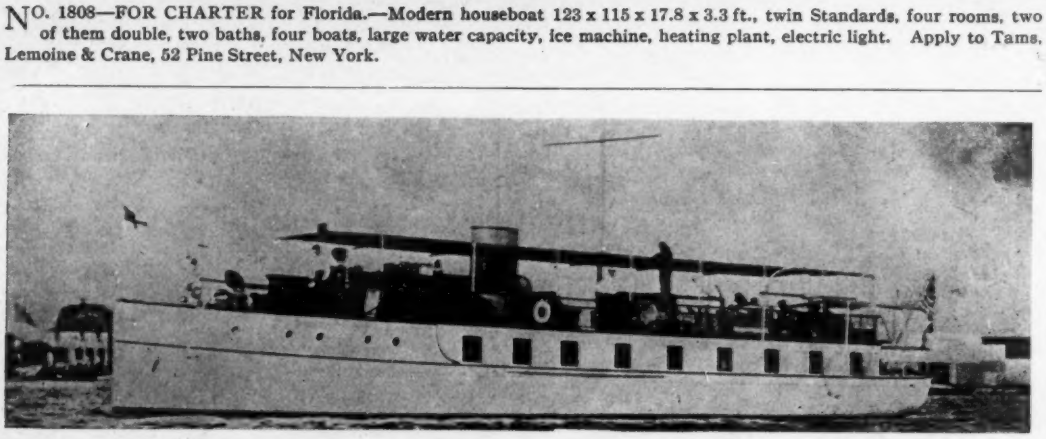
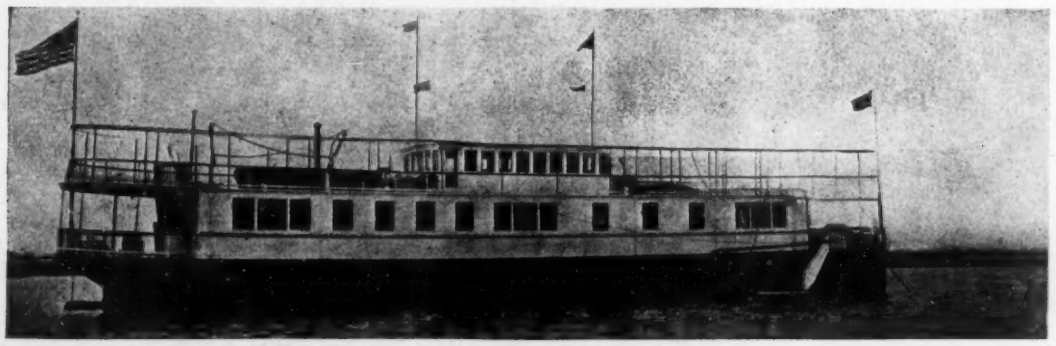


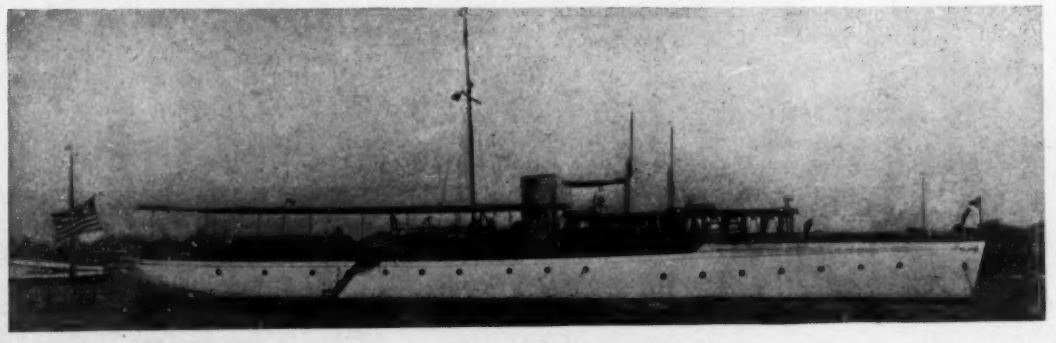
NO. 1808—FOR CHARTER for Florida.—Modern houseboat 123 x 115 x 17.8 x 3.3 ft., twin Standards, four rooms, two of them double, two baths, four boats, large water capacity, ice machine, heating plant, electric light. Apply to Tams, Lemoine & Crane, 52 Pine Street, New York.



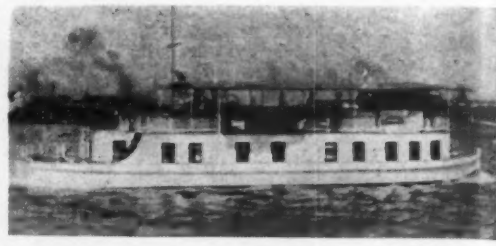
NO. 1865—FOR SALE.—Modern shallow cruising houseboat. Built primarily for Chesapeake and Florida waters. 90 x 17.6 x 3.3 ft., built 1911, two 60 H. P. Craig motors, speed 12 miles; four rooms and two baths. For particulars apply to Tams, Lemoine & Crane, 52 Pine Street, New York.



NO. 1805—FOR SALE.—Desirable twin-screw houseboat 125 x 119.6 x 23.4 x 3.6 draught; 8 large staterooms all with brass beds, main saloon, dining room and observatory; 4 bathrooms, 5 W. C. Carries 6 boats. In excellent condition throughout. Further particulars from Tams, Lemoine & Crane, 52 Pine Street, New York.



NO. 7999—FOR SALE OR CHARTER.—Attractive steel Twin Screw Motor Yacht, 118 x 110 x 15 x 5 ft. draught; 3 double staterooms, main saloon, dining saloon and 2 bathrooms. Craig motors; speed 16 miles. Full particulars from Tams, Lemoine & Crane, 52 Pine Street, New York.



NO. 1860—FOR CHARTER.—Twin-screw motor house boat 70 ft. over all; 18.6 ft. beam and 18 in. draught Two 25 H. P. motor, speed 9½ miles. Has 3 staterooms main saloon, deck house, 2 bathrooms. Lighted by elec tricity. Full particulars from Tams, Lemoine & Crane, 5 Pine Street, New York.

NO. 8760—FOR SALE.—One o the well-known Viper Sea Sleds 18 feet over all x 4.8 ft. beam. Has a 60 H. P. 6-cylinder Sturtevant Motor. Speed, 27 miles. Designed by Albert Hickman and built in 1913 by the Viper Company. Apply Tams, Lemoine & Crane, 52 Pine St., New York.

NO. 1847—FOR CHARTER.—Light draught houseboat 85 ft. over all, 18 ft. beam, and 28 in. draught. Buil 1910. Has 50 H. P. Standard motor; speed 12 miles. Ha 3 staterooms, bathroom, large saloon and good upper deck Lighted by electricity. Apply to Tams, Lemoine & Crane 52 Pine Street, New York.

NO. 7074—FOR SALE OR CHARTER.—Modern raise deck cruiser, 80 x 13 x 4 ft. draught. Two double state rooms, main saloon, dining saloon, shower bath and tw owners' W. C.'s. 100 H. P. Standard motor. Speed 13-1 miles. Lighted throughout by electricity. Further pa ticulars from Messrs. Tams, Lemoine & Crane, 52 Pin Street, New York.

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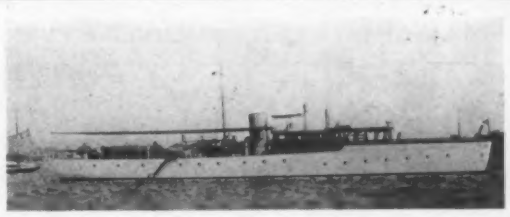
NO. 2247—EXCEPTIONAL BARGAIN.—Twin-screw, flush deck, cruising power yacht, 90 x 15.3 x 4.9 ft. Built 1912. Speed 13-14 miles. Three double staterooms, large main and dining saloons, bath, two toilets, separate galley, etc. Independent electric light plant. Cox & Stevens, 15 William St., New York.

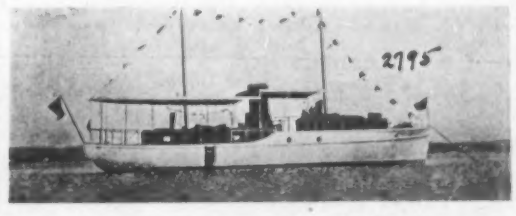


NO. 885—FOR SALE OR CHARTER.—Exceptionally handsome, fast, steel, twin-screw cruising power yacht; 118 x 16.6 x 5 ft. Built from our own design. Speed up to 18 miles; three double staterooms, main and dining saloons, two bathrooms, electric lights, etc.; handsomely finished and furnished. Probably the most desirable proposition ever offered in a large gasoline yacht. Apply to Cox & Stevens, 15 William St., New York.

NO. 363—FOR SALE OR CHARTER.—The most desirable house yacht available. Luxuriously furnished. Splendid accommodation. For full particulars, plans, etc., apply to Cox & Stevens, 15 William St., New York.

NO. 1830—FOR SALE.—Very desirable keel auxiliary schooner; 70 x 45 x 15 x 9 ft. Lawley build. Two staterooms, large saloon, etc. Speed under power 6½ miles; 20th Century motor (installed 1914). In fine condition having had best of care. Will be sold at bargain figure as owner has purchased larger one through us. Cox & Stevens, 15 William St., NewYork.

NO. 1692—FOR SALE.—Attractive cruising power yacht; 66 x 13 x 4 ft. Recent build. Speed 11-12 miles. Two double staterooms and bathroom; dining saloon, galley, etc. Electric lights. Price low. Apply to Cox & Stevens, 15 William St., New York.



NO 2795—FOR SALE OR CHARTER.—Now in Florida waters. 55 ft. bridge deck cruiser. Built 1914. Speed 10½ miles. Standard motor. Dining saloon and galley forward, two double staterooms and toilet aft. Cox & Stevens, 15 William Street, New York.

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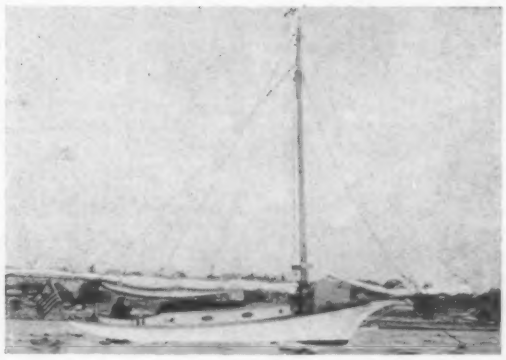
NO. 815—FOR SALE.—One of the Buzzards Bay class of Herreshoff sloops built 1902 at cost of over $6,000. 46.8 ft. over all, 30-ft. waterline, 10.9-ft. beam, 5.4-ft. draught. Large cabin with four fixed berths, large toilet room and galley, full headroom, narrow Herreshoff cabin house, 10,000 lbs. outside lead, full suit of sails in good condition, tender. Is offered for sale at the bargain price of $1200, if taken at once. Apply to John G. Alden, 131 State St., Boston.



NO. 622—FOR SALE.—Auxiliary cruising sloop built on lines of Gloucester Fisherman, 32 ft. over all, 27-ft. waterline, 10.6-ft. beam, 5.6-ft. draught. Built 1906 by Ed. Leaman, over $1,800 spent on boat 1908 in alterations and improvements. Water tight cockpit, roomy main cabin with two extension transoms and two fixed berths, toilet room and large galley full width of boat with coal stove, full headroom. Two suits of sails, one new 1913, 3 anchors, 3 cables, new standing rigging 1912, 8 H. P. Palmer engine, thoroughly overhauled Spring 1914. Cedar tender. Whole outfit in exceptional condition throughout. Apply John G. Alden, 131 State St., Boston, Mass.

NO. 368—BARGAIN.—Auxiliary cruising yawl 63-ft. over all, 46-ft. waterline, 13.6-ft. beam, 8.6-ft. draught. Built by Lawley. Has double and single stateroom, large main cabin, sleeping four, two toilets, large galley and forecastle. 25 H. P. 4 cycle Fuller engine installed in lazarette. 13-ft. dinghy on davits. Snug rig, carries sail well. Over $3,500 spent on boat in 1907 by Lawley. Is sound and tight; in first class condition. Completely equipped for cruising. Price only $1,500. Apply John G. Alden, 131 State St., Boston, Mass.

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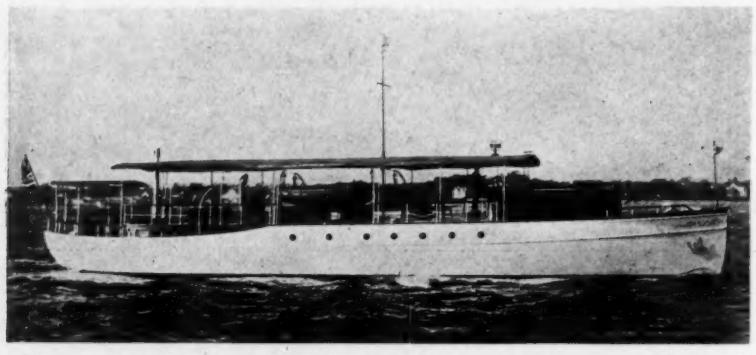
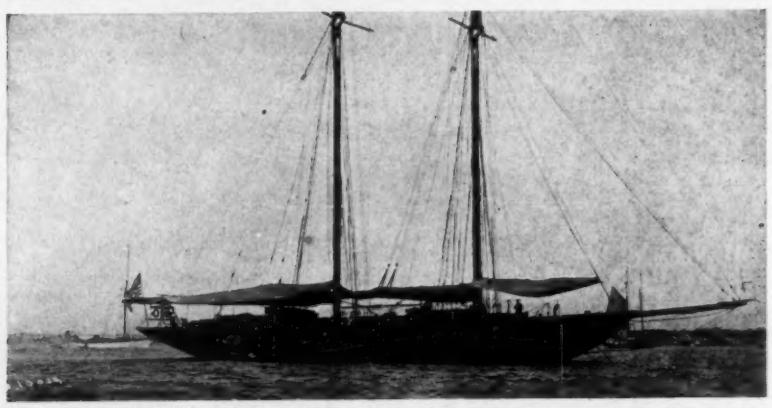
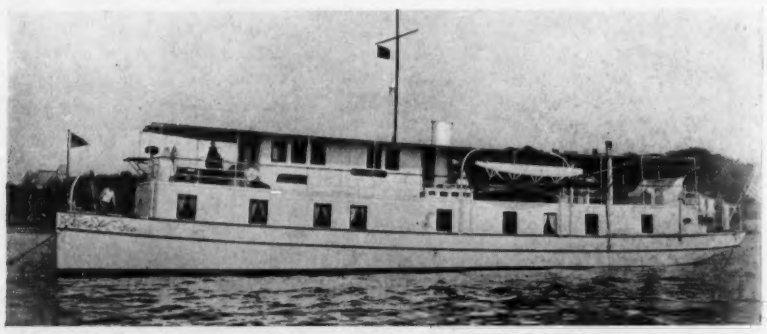


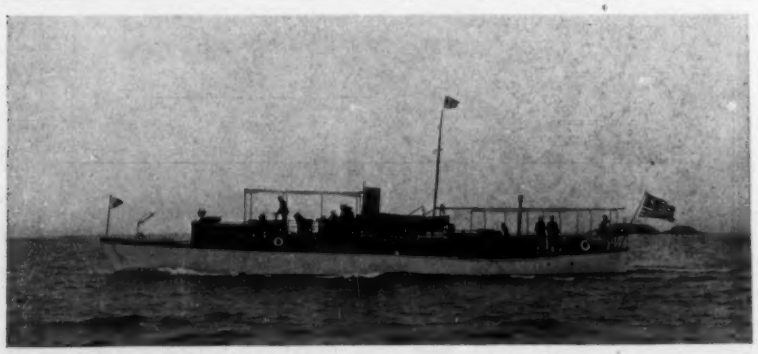
NO. 2070—IDEAL FLORIDA CRUISER.—74 x 16.6 x 3 ft; twin screw. Three state rooms, bathroom, dining saloon, etc. Reasonable price accepted. Apply William Gardner & Co., No. 1 Broadway, New York City.



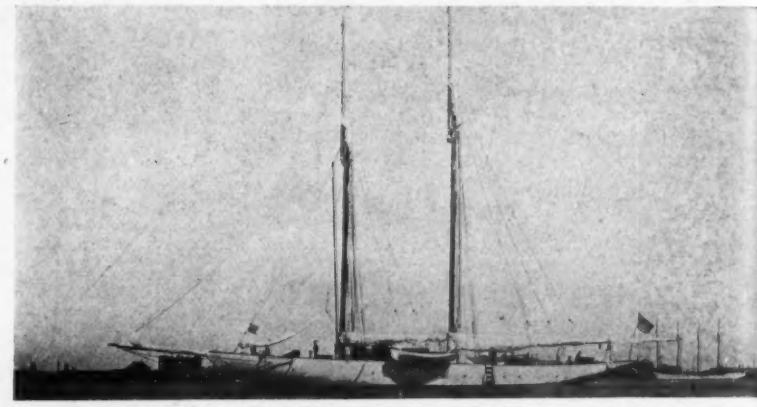
NO. 2245—Medium draught, flush deck auxiliary. Schooner 106.6 x 75 x 24.6 x 5.6 ft. Equipped with 150 H. P. Speedway engine, speed under power 10 miles. Two double and one single stateroon, saloon, bathroom, etc. Has coppered bottom. Hot-water heating system, electric piano. William Gardner & Co., No. 1 Broadway, New York City.



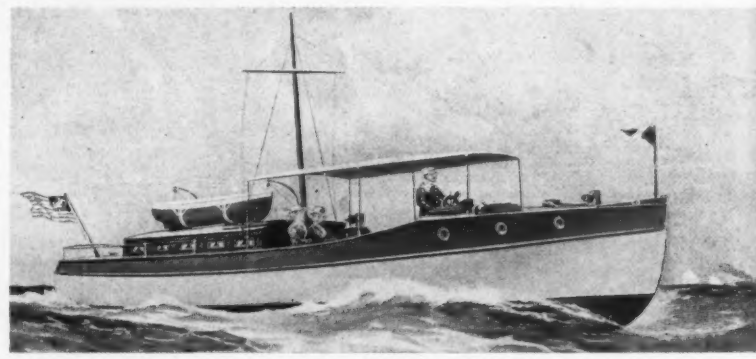
NO. 160.—Power houseboat, twin screw 106 x 20. 4ft., light draught| commodious accommodations. Now in Florida. Sale and charter. Apply Wm. Gardner & Co., 1. Broadway, New York.



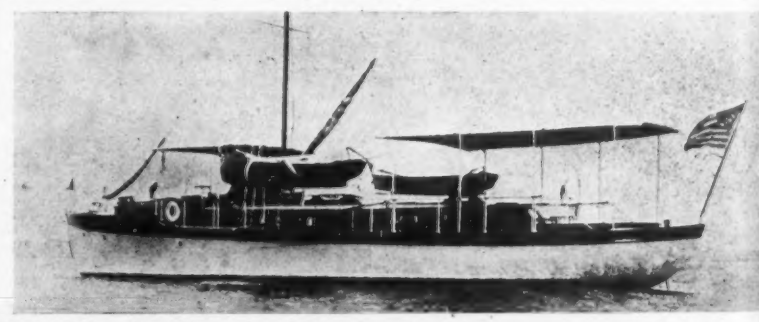
NO. 923—Gasolene cabin cruiser, 85 x 14 ft. 6-cylinder, 100 H. P. motor, three staterooms, bath, etc. Attractive price. Full particulars from Wm. Gardner & Co., 1 Broadway, New York.



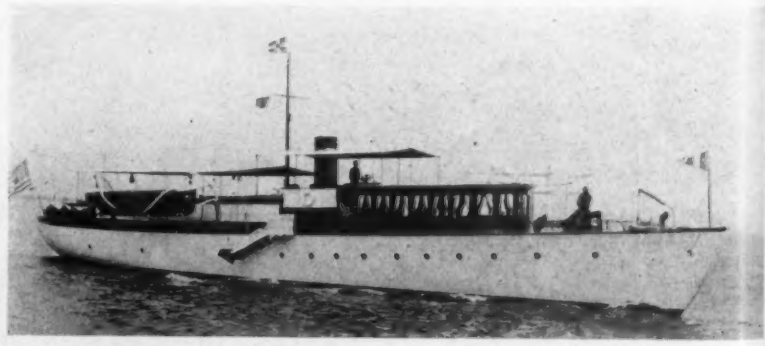
NO. 1546—FOR SALE AND CHARTER.—Reasonable figure. Modern keel. Auxiliary schooner, 110 x 82 x 22.6 x 11.1 ft. Built 1905. Equipped with 40 H. P. kerosene engine. One double and four single staterooms, main saloon, bath room, two toilets, etc. Small deck house amidships. First-class sea-boat. For full details apply Wm. Gardner & Co., 1 Broadway, New York.



NO. 2075.—Elco cruiser, 36 x 8.8 ft. recent build, 20 H. P. motor. Quick sale desired. Apply William Gardner & Co., No. 1 Broadway, New York.



NO. 1919.—Attractive cruiser, 60 x 12.6, with 50 H. P. motor. Boat complete in every respect, recently built and had but little use. Apply William Gardner & Co., No. 1 Broadway, New York City.



NO. 1840.—Handsome twin screw motor yacht 107 x 18.3 ft. two standard motors exceptionally large dining saloon and owner's quarters. Offered by an estate. Plans etc. from Wm. Gardner & Co., 1 Broadway, New York.

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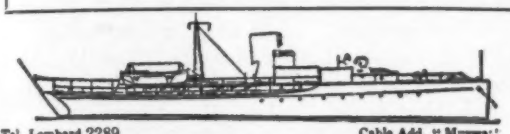

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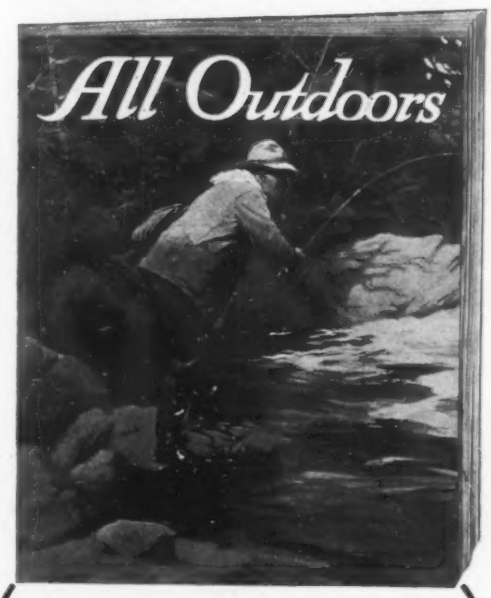

Watch For This Cover

on the news-stands December 15th. It will be in full color and is *something new* in magazine cover arrangement.

The Contents of All Outdoors

is in keeping with the cover—something new and different for outdoor people in each issue.

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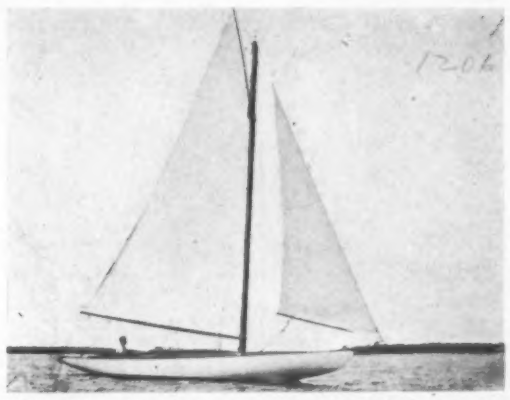

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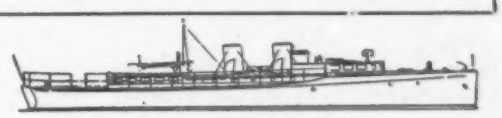

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This list contains almost every book published on the subjects of naval architecture, navigation, seamanship, sailing, motor boating, cruising, etc. Great care has been exercised to make it complete in every way. Most of the titles are self explanatory but we will be glad to give information as to the contents and scope of any book published on these subjects. Many of the books should be in every yachtsman's library, while others may be useful only to the man making special studies of some of the features of the game. Prices include carriage cost to your home or club.

Cruising

Across Europe in a Motor Boat. Rowland 2.00
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Motor Boats and Engines

Carburetors, Vaporizers and Valves. Butler 2.00
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Elementary Lessons in Steam Machinery and Marine Steam Engine. Laindmade-Garsford 2.00
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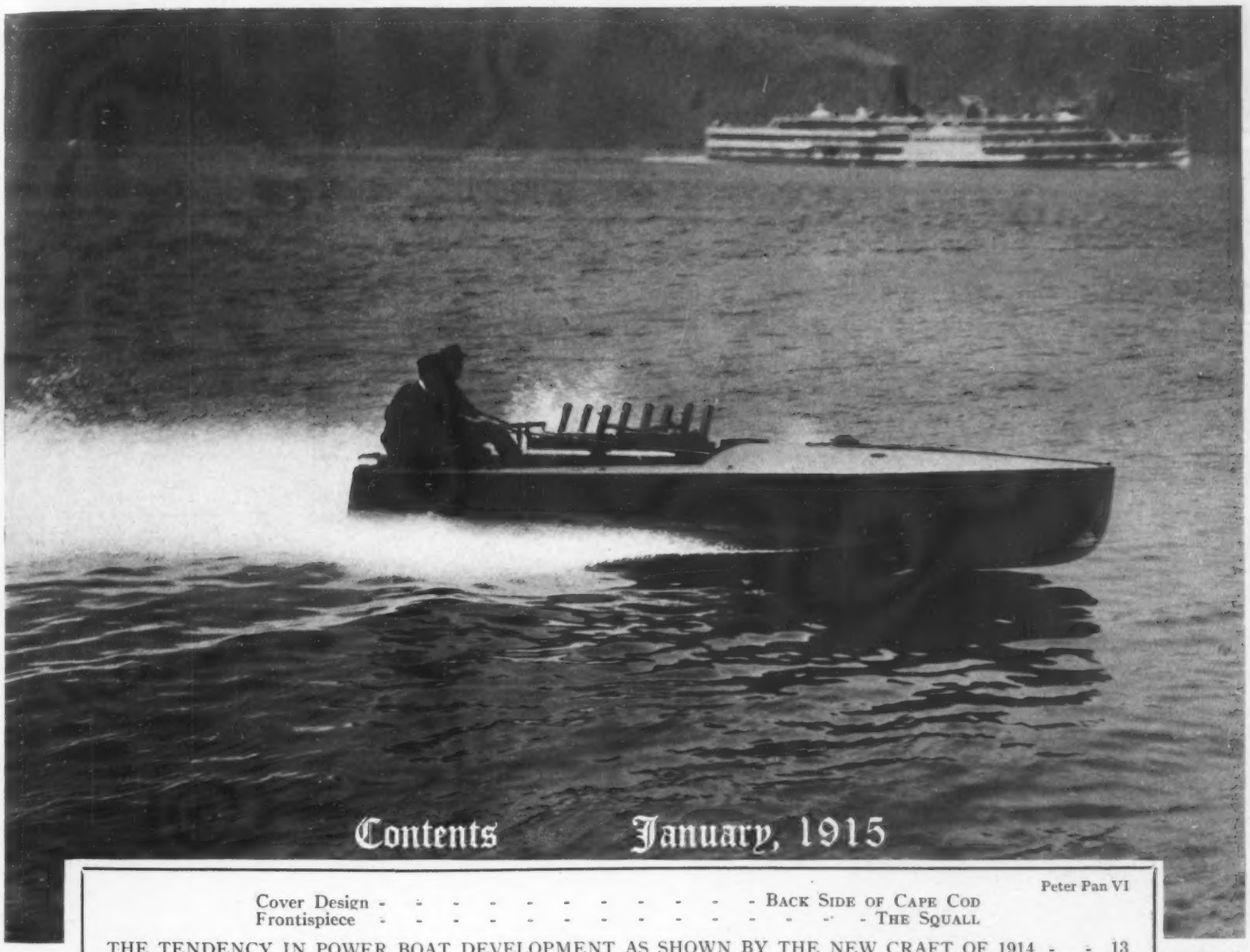

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EDITED BY HERBERT L. STONE

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YACHTING

VOLUME XVII, NUMBER 1 JANUARY, 1915

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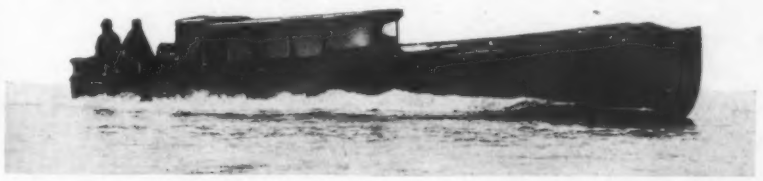
The Tendency in Power Boat Development as Shown by the New Craft of 1914

ORIANA, A SUCCESSFUL 36-FOOTER OF UNUSUALLY GOOD DESIGN, WITH THE ROOM OF A 45-FOOTER. A. E. LUDERS, DESIGNER

WHATEVER else may be said of the year that has just passed, it can be set down as marking a greater advance in the design and development of power-driven pleasure craft than any of the years that have gone before since the advent of the hydroplane. It was only two years ago that one of the readers of YACHTING—a man amply qualified by experience and training to judge—wrote us, saying: "I consider the plans section of a magazine the most interesting part of it, yet I find most of them filled up with commonplace designs; at least a third of the motor-boat designs in all magazines look like ——. No, I have never been there, but of what I have heard of it, it couldn't be any worse than some of these freaks." The same remarks could not be made about the boats of to-day, taking them by and large.

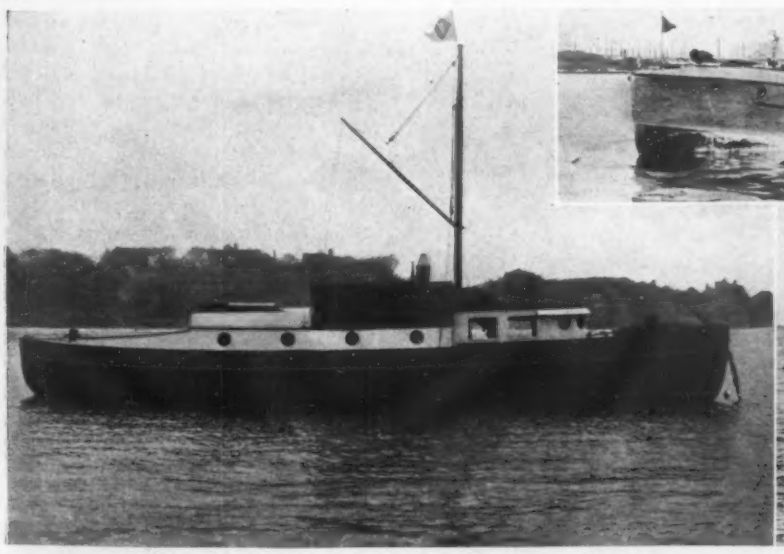


SHADOW, A NEW 48-FOOT HIGH-SPEED LAUNCH DESIGNED BY THE GAS ENGINE & POWER COMPANY AND CHAS. L. SEABURY COMPANY, CON. THE MARKS ON HER SIDE AFT ARE ICE THAT FORMED ON HER TRIAL TRIP

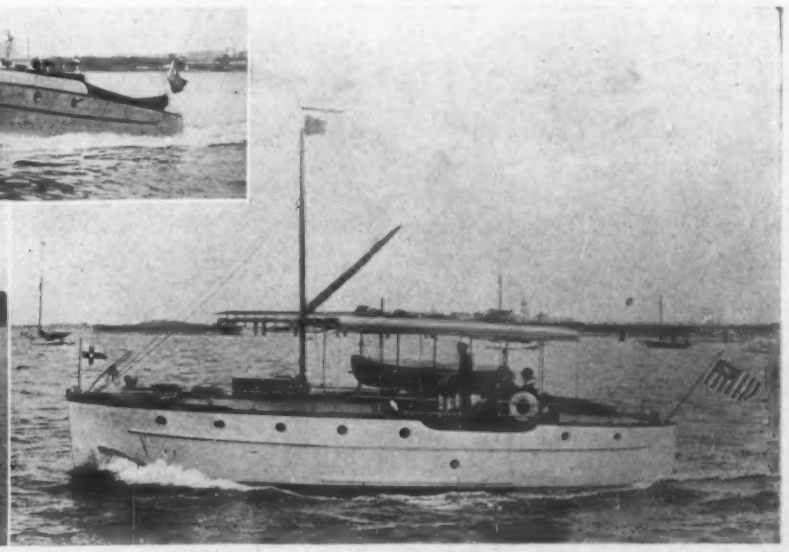
The 1914 boats, as a rule, showed a tendency to break away from the box-like hulls of the past; more attention was paid to the underbody design to ensure easy lines, properly designed sections and the incorporation of correct designing principles to ensure better boats and more easily driven models.

Possibly the most important development to be noted is the jump that has been made in the size of yachts driven with internal-combustion engines and, for the first time, we have seen pleasure boats over 150 feet in length driven with this type of power. The 154-footer Florence, with 400 H. P., is an example of this trend, though she followed the more conventional steam yacht model with such changes as were necessary to adapt her to the new type of power. Other boats, such as Albacore, a 106 footer, with two 200-H. P. motors, have been developed that follow the more accepted type of power boat.

The trend toward the torpedo type in high-speed cruisers marks the influence of naval architecture on high-speed boats for pleasure craft. The year has shown a marked tendency to follow this

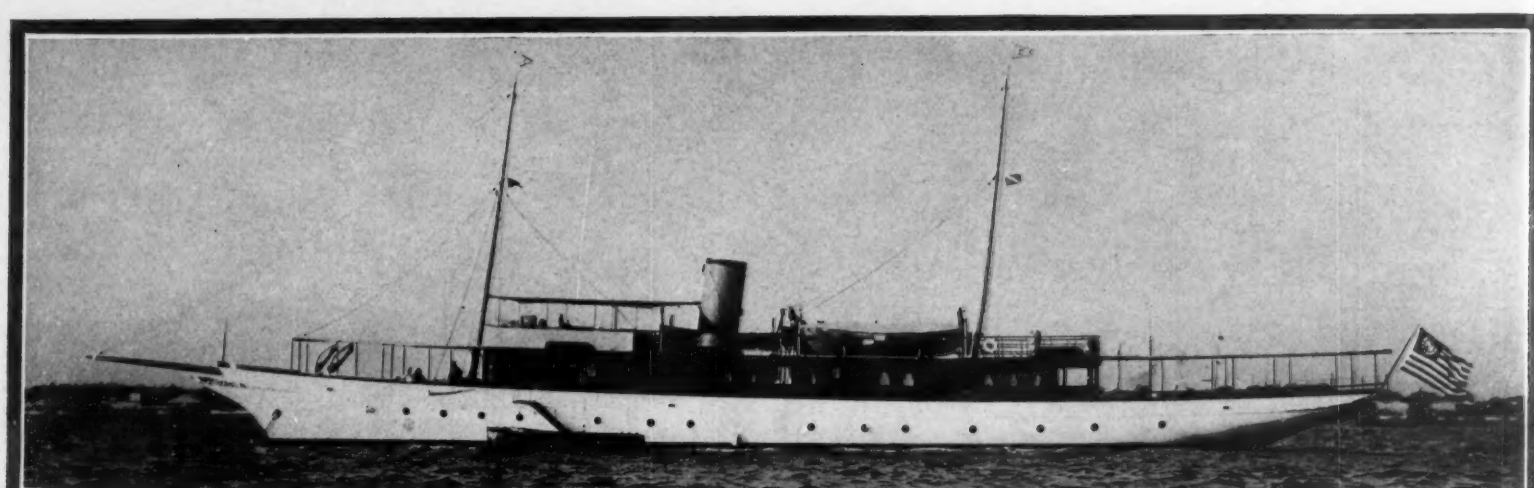


JUDY VI, A NEW TYPE FROM DESIGNS BY B. B. CROWNINSHIELD, WITH MANY GOOD POINTS FOR ROUGH WATER USE



KEX II, A NEW 38-FOOTER THAT IS "ALL BOAT," AFTER PLANS BY F. P. HUCKINS

CHARMIAN, A 37-FOOT V-BOTTOM CRUISER WITH 100 HORSEPOWER

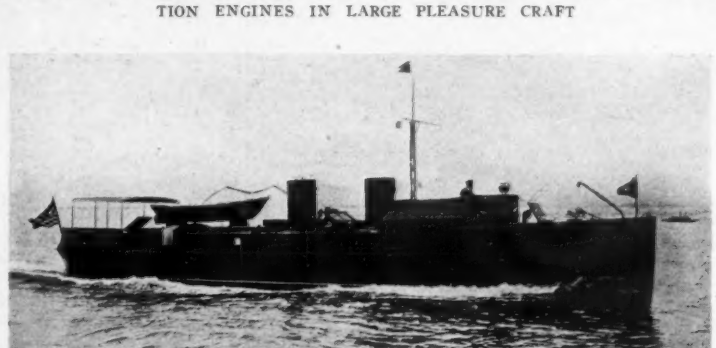


FLORENCE, THE LARGEST AMERICAN-BUILT POWER YACHT, DESIGNED BY GIELOW & ORR, SHOWS THE TENDENCY TOWARDS THE USE OF INTERNAL COMBUSTION ENGINES IN LARGE PLEASURE CRAFT

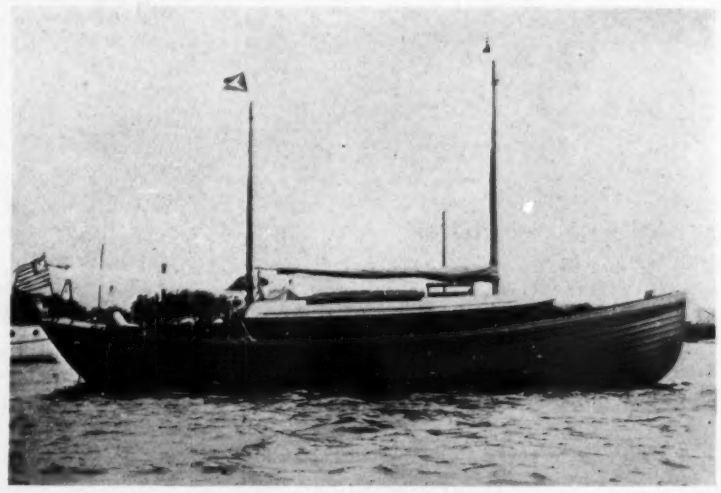
lead in boats from 55 feet in length up, and the result is a much better-looking hull, easily driven and able, under the conditions for which it is designed.

The development of the V-bottom type as seen in such boats as Flyaway III, Charmian, and Piute V has also brought about a change of ideals for boats of smaller size. The performance of the former of these boats, especially, has been so remarkable that there will probably be a swing towards the V-bottom type, or modifications of it, in the coming year. Advocates of this type claim not only that it makes an excellent sea boat, but one that is at least two miles an hour faster with the same power than the conventional round-bottom type, and, when equipped with sufficient power, can be driven over 20 miles an hour for long distances, even through considerable sea.

In the speed-boat type we have seen a greater speed developed than ever before, nearly 55 miles having been attained in a properly sanctioned race. The tendency here seems to be towards a two-step or single-step plane with a forward rudder, some of the more successful boats lifting and planing more



ENSIGN, AN EXAMPLE OF THE TORPEDO TYPE POWER CRUISER WHICH IS BECOMING POPULAR. DESIGNED BY SWASEY, RAYMOND & PAGE



TWO BROTHERS, A 41-FOOT POWER CRUISER, DESIGNED BY COX & STEVENS AND BUILT ON THE LINES OF THE SEA BRIGHT SKIFFS, WHICH HAVE PROVED AMONG THE BEST SEA AND SURF BOATS ON THE ATLANTIC COAST

pronouncedly than has ever bee seen before.

The agitation towards a good small, easily driven, restricte class semi-racer is apparent i such boats as the new bow wav collecting type recently designe by M. M. Whitaker. The boa was not built to any special re strictions, but has shown a phe nomenal speed and efficient qual ities for the power employed.

More attention to safety an to proper installation of power i also apparent in the new boat while the utilization of ever inch of room and careful desig have succeeded in bringing ou the "roomiest" boats for thei length of any that have bee yet produced, without spoilin the proportions. A number o small boats have appeared on th Atlantic Coast with pilot house and this innovation, while it can not be said to improve the look and proportion of a boat, bid fair, by reason of the comfort i affords, to become popular in th future.

In spite of all the talk of Diese engines, this type of power ha not yet come into much use i pleasure boats—possibly due t the fact that the power plant have not yet become standard ized.

A WHITAKER 21-FOOTER OF THE BOW-WAVE COLLECTING TYPE THAT MAKES ABOUT 21 MILES AN HOUR WITH A 20-HORSEPOWER ENGINE

FLYAWAY III, A 100-HORSEPOWER 38-FOOT HAND V-BOTTOM BOAT, WHICH HAS SWEPT THE BOARDS IN LONG-DISTANCE RACING

The Adventurer's Corner

By J. T. ROWLAND

Geology Plus Seamanship and a Gas Engine

"I AM reminded," said the Geologist slowly, patting the gray locks over his right temple with a characteristic gesture, as he picked out a fresh corner of the transom, after sticking his head out of the companion slide just long enough to see that there were no signs of its breaking away or a change of wind; "I am reminded by friend Bill's yarn of an experience which befell me once in about the same latitude, but on the opposite coast of the continent. This hike took place in the early days of gas engines, and was, perhaps, the first attempt ever made at a power-boat cruise in sub-Arctic waters."

We had just listened to the "Sea Tramp's" tale of a wild run across the Gulf of Alaska, and, as the weather outside still kept us cooped up in the little harbor waiting for a chance to be on our way, the Geologist, by reason of his seniority, was called upon for the next yarn that was to while away an hour of our tedious wait.

"I was at that time connected with an institution in the East, the curator of which was an ardent paleontologist. Learning by chance that fossil relics of a certain rare gastropod had been picked up as curios by a whaling captain upon Akpatok Island, in Hudson's Straits, he appropriated one thousand dollars for the collection of specimens from that remote corner of the earth and deputed me, as the youngest and most adventurous member of the staff, to fare forth in quest of the aforesaid fossilized snail.

"Akpatok Island, I soon became aware, was a place of singularly mobile habitat, since it lay in a different place upon each of the various maps and charts of Arctic America which I could lay my hands upon. In this much, however, they did agree: namely, that the island was an irregular land mass about 40 miles long located somewhere near the center of Ungava Bay, on the south side of Hudson's Straits, just west of the entrance, its major axis trending in a general northeast and southwest direction in conformity to the mountain structure of the Labrador coast.

"To reach it one must sail north along the entire length of Labrador, turn and double Cape Chidley, west into Hudson's Straits, and then cross about 90 miles of the treacherous currents of Ungava Bay. On this account it is only through accident that any vessel ever approaches the island, lying aloof and austere at the center of its guarding vortex of current-borne ice floes. Such was the fabled giant to whose shores I must win, and whose treasure store I must pilfer—like a modern Herakles.

"The idea of securing any sort of a vessel which would be capable of carrying me thither from civilization was, of course, out of the question with the scanty means provided. After some inquiry, however, I learned that the whaling bark Pole Star, Captain Briggs, of New Bedford, was about to sail on a cruise to Arctic waters and by good luck I succeeded in driving a bargain with her close-fisted skipper to carry me and a small expedition boat to the entrance to Hudson's Straits, off Cape Chidley, the northern point of Labrador, and there set me adrift.

"The next problem was to find a suitable boat. My first idea had been to buy a small sailing yacht, but it was promptly explained to me that such a craft, even with the mast unstepped, would be too awkward a thing to handle aboard the whaler. At last, through Captain Briggs' mediation, I became the proud proprietor of a carvel-built, double-ended, pot-bellied ex-ship's lifeboat which must originally have been jolly-boat to the good ship Ark and had blown into New Bedford harbor the previous winter out of a southeast gale—the Lord alone knows whence.

"This venerable craft had neither oars, masts or sails, but Capt. Briggs, in an unguarded moment, volunteered to supply these *gratis*, as well as to allow "Chips" to improve his time for me on the voyage north by building into her a centerboard or "sliding keel"—as it was usually called in those days.

"Even so rejuvenated, however, it was not likely that my ship would be any great shakes on a windward thrash, and I had about accepted the wisdom of Capt. Briggs' advice to figure on picking up a couple of Eskimo to supply auxiliary power with the white ash, when (and now enters the central theme of my tale) I fell before the wiles of one whom I may call the original prototype of all motor-boat "bugs," and allowed him to install one of his fitly named "Paradox" engines in my staid old lifeboat.

"Such an engine! Very grand it looked to me then, in its brilliant red and green paint, with its brass mountings, ponderous fly-wheel and huge, stud-headed, single cylinder. It made an awe-inspiring picture even at rest, and when in action ———! Faith, an' words fail me!

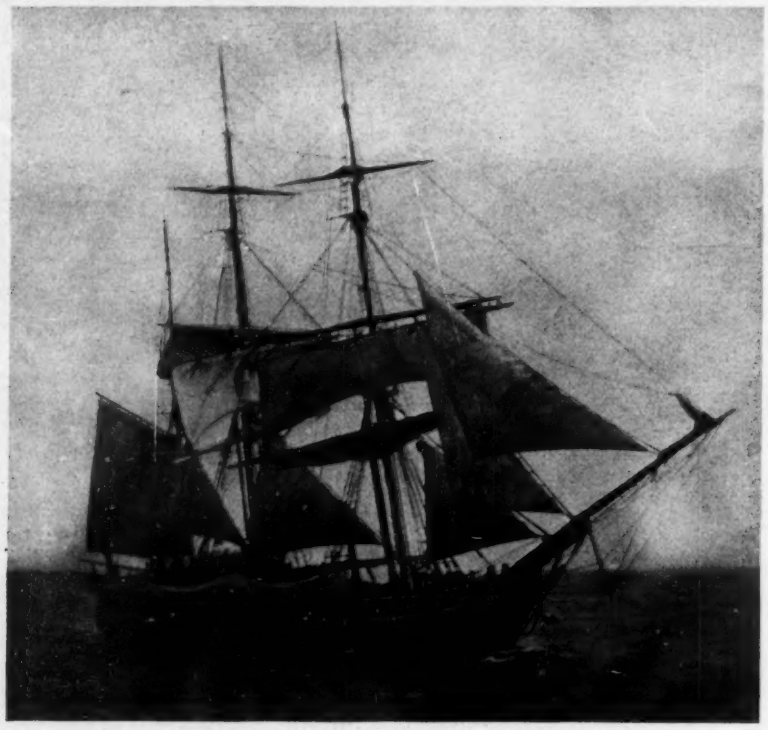
Crashing flame, accompanied by much dense smoke, burst at intervals from its short, up-turned exhaust pipe; the fly-wheel—slightly eccentric—struggled like a Titan to tear itself free from the bedplates or, failing that, to rip the very bottom out of the boat itself, and the great cylinder labored and throbbed at every power impulse under the terrific burden of turning over a big, broad-bladed steam propeller at the remarkable rate of 250 revolutions per minute. Still, "she" actually did make the boat go, which was the thing that counted.

"It was the tenth of July, and a bright, clear Arctic summer's day, when the time at last arrived for setting out from the whaler in my small boat. To east and north an ice-blink on the horizon disclosed the position of the great Davis Strait floe, which, by the way, served to smooth out the sea from a three days' easterly to such an extent that only a long, easy ground swell rocked the weather-tried old Pole Star in a somnolent fashion. A light breeze cast playful catspaws across the broad waters, whose expanse was broken only here and there by scattered ice pans of varying extent but of a like glittering whiteness. To and fro about us dashed flocks of guillemots and twittering Arctic tern; porpoise broke water lazily about the ship, and off half a mile to the northward a bull humpback came to the surface in a diminutive lake between two pans and released the pent-up air from his lungs with a sudden roar like that of escaping steam.

"Captain Briggs noticed the eager glances cast towards the quarter deck.

"'We'll have to get that fish, boys,' said he; 'so bear a hand and turn to on this here steamboat contraption. We'll get 'er overside an' lanched in a hurry.'

"My expedition boat was roughly lowered forthwith. My gear was stowed aboard hastily; a boat-steerer and a Portugese



"A LONG, EASY GROUND SWELL ROCKED THE WEATHER-TRIED OLD POLE STAR IN SOMNOLENT FASHION"

harpooner went down with me and helped step the two stumpy masts; then Capt. Briggs led me below to his cabin, and with an umbrageous forefinger indicated the Pole Star's position upon a not-too-lily-white chart.

" 'Cape Chidley bears wes' nor' wes', 46 miles from here. You'll have it aboard before dusk if thet-air do-funny kin keep a-goin,' he said. 'Best of luck to ye—such as ye don't desarve—and, recollect what I told ye, that the Anna an' Mary, Capt. Olmstead, generally figgers to be into Lake Harbor come the fag end o' August. He's homeward bound this fall, and like as not will give ye passage if ye can't find nobody else. Good-bye!'

"A few moments later I threw Paradox's massive piston up hard against compression, the sparker snapped with a thump and a roar, 'she' started kicking, and the water was churned to foam under the lifeboat's pointed stern.

" 'Cast off,' I sang out, and the whalemen standing at bow and stern only too eagerly scrambled back aboard their own ship. I threw my helm hard over, waved a last farewell to the awe-struck faces lining the whaler's rail, and headed my lonely little craft out into the unknown.

"Now, be it confessed that I am no sailor. Much less was I one then. Such a rudimentary task as steering a course, however, I could perform when all alone in a boat, as I was then, with nobody else to do it for me. So, with only the deviations necessitated by the fact that she lacked alike wings and the power to break through ice ten feet thick, the little vessel and I made fairly straight going of it wes'nor'west all that lovely afternoon. To my delight and secret wonderment, Paradox ran evenly and vigorously without complaint.

By the time old Sol had circled well into the northwest, however, the persistent absence of land began to worry me a bit. What if Capt. Briggs' navigation was sending me too far north—up Hudson's Straits? One might go hundreds of miles in that direction without ever a glimpse of land.

"Puzzled, because the land about Chidley is high and should be visible from miles off in such clear weather, I struggled with myself to keep from growing panicky—since there was nothing I could do to better matters—and strove to find interest in the beauty and oddity of the surroundings. On the western horizon lay a heavy bank of cumulus clouds which had arisen as the afternoon advanced. They were magnificent now in brilliant sunset hues of every shade.

"I was letting my eyes feast upon them in delight, when suddenly a quality which I had not noticed before brought me to my feet in amazement; there was a surf breaking at the foot of my cloudbank!

"Then the truth dawned. These clouds were not clouds at all, but the solid land of Chidley Island, covered to the landwash with glistening, virgin snow! If this discovery allayed my uneasiness it also served to show how easily one may be deceived by natural objects of a sort with which he is not familiar, and how necessary it is for the explorer to be constantly alert.

"Before long a channel or inlet seemed to open up in the midst of the land, and for this I headed, thinking to make harbor for the night. Half an hour later I had cliffs several hundred feet high on either hand, and was being swept westward by a swirling current which ran a good eight knots. Add to this the speed of the boat due to Paradox, and you will see that the land was dashing past at what might well seem to me like railroad speed, after a month at sea. Now the channel narrowed to a few hundred yards; again it expanded to a mile, but as the minutes stretched out into half hours, and finally into hours, the force of the current increased, rather than diminished.

"This was all quite contrary to my plan of campaign, as I had no wish to be swept up into a long inlet or sea-loch from which I would have to spend hours in getting to sea next morning, in order to double Cape Chidley into Ungava Bay, but, scan the shores as I might, I could find never a place that promised anchorage. Everywhere the cliffs were sheer and bold and the roaring tide boiled along their foot. A pretty pickle, to be sure! I began to wonder if I had found the mythological river which the Norse believed rushed from the sea through a gorge down into the interior of the earth. It was an idle fancy, of course, but the gloomy, bare, black hills and the dark, swirling current gave it reality enough to make the skin prickle along my backbone!

"Now it was ten o'clock and the late northern summer twilight had taken the place of day. Ahead lay a turn in the canyon. I could see that beyond it the channel widened—would it be into a great, dismal loch, encompassed by lofty hills, or——

"While I was still wondering, the current literally flung us around the turn—and there, to my amazement, lay the open expanse of *sea,* stretching as far as eye could reach. Only one thing it could be: Ungava Bay. The little boat and I had blundered all unsuspecting upon the 'tickle' between Chidley Island and the mainland of Labrador and the flood tide had done the rest. Thanks to it, we had come through in a few hours to the very threshold of our quest, whereas it might have meant perhaps days of struggling with currents and ice to round Cape Chidley through Gray Strait and double back into the bay to the point where I now found myself. For a less personal reason as well, the discovery of this passage delighted me, as its position was not

A TYPICAL "TICKLE" OF THE NORTHERN LABRADOR COAST

THE BLEAK, CLOUD-COVERED COAST OF THE NORTHERN LABRADOR

then indicated definitely upon any existing map or chart.

"I stopped the engine and tied up for what was left of the night inside a little cluster of rocks, brewed a kettle of tea over the charcoal brazier, and curled up in my sleeping bag upon the bottom of the boat, well content with the first day's results.

"A few hundred yards away the tide roared past the entrance point to Chidley Island Tickle; little wavelets lapped against the lifeboat's skin, close to my ear, and myriad stars glowed brightly overhead.

"I thought pityingly of my late confreres stewing through the hot nights back in the States, snuggled comfortably deeper into the warm recesses of my woolly bag; sighed contentedly—and was fast asleep.

"Strange things happened thereafter, but in the depths of my oblivion I was conscious only of being rolled about and of having to readjust my position a couple of times. When at last my eyes opened, the sun was streaming into them over the crest of Chidley Island.

"Greatly wondering, I noted that the boat was lying on her starboard gunwale—yet there seemed to be no water in her. I struggled out of the sleeping bag, got to my feet—and nearly collapsed from surprise. Here was a barricade of dry rocks all about us, *and no water in sight!*

"It was really very simple: The tide had fallen—40 feet of it—and what had been a pretty little harbor the night before was now a dry basin. I was learning—sadly, but fast.

"Evidently one could do nothing but wait for the water to come up again. I shot a couple of little divers, which proved, on issuing from the pot, to be very oily, but not wholly unsavory; boiled myself a mess of porridge and breakfasted at leisure.

"It was not 'til mid-afternoon that Experiment (so I should have told you my ship was named) floated off. By this time I had seen all I wanted of Chidley Island, so, in spite of the time of day, I set sail, and, before a light, off-shore breeze, drifted lazily out from land. The distant island of my quest lay hidden somewhere behind the luring, sunset-lit horizon over my prow.

"The course to the nearest part of Akpatok Island (which was the northeast extremity) I judged to be about N.N.W. (magnetic). I say 'judged' with good reason. In the first place, there was the discrepancy, already mentioned, between the various authorities as to the island's location; in the second place, my own exact point of departure was by no means at my disposal or capable of being pinned down on the chart; and last, and worst, the magnetic variation in that part of the world is very high—in the neighborhood of 50 degrees westerly—and changes quite rapidly as one's longitude changes. All I really knew positively was that grim old Akpatok lay somewhere to the westward. However, it was reputed to be high land and made a fair mark to hit at less than a hundred miles range, so I had little anxiety about coming within sight of it so long as the weather remained clear.

"The night was perfect. Experiment's crew of one slept off and on during most of it, rousing only occasionally to strike a match over the compass, and see that she held somewhere near true to the course. About midnight the wind freshened in a series of squalls to quite a stiff breeze from the east. Then it was the little vessel began to prove her worth. With only the lug foresail set and with the helm secured slightly a-weather, she bowled merrily along, unguided, but without departing more than half a point on either side from her heading, thanks to her long keel and pointed stern, upon which the quartering seas could get no grip.

"Morning came with a high, gray dawn, presaging less favorable weather. Chidley land was no longer visible astern, but I judged we had not come more than 30 miles, so, despite the fair wind, I set about starting the engine in order to complete the remaining sixty-odd by noon and have daylight left for what might be a long job in finding a harbor after the island was reached. How little can one see ahead!

"The engine would not start. It did not take long this time to discover the reason. This, be it remembered, was before the day of the so-called dry battery. For ignition, Paradox depended upon the current from six old-fashioned voltaic cells, connected in series. Now, for the first time, I discovered that when Experiment careened herself on the beach 24 hours before she had not only spilled the liquor out of the cells, but had broken the flasks themselves.

"I had, of course, a reserve store of acid, and the zinc and copper plates were undamaged, but what to do for containers was a poser. Some of my supplies were in tins, but metal, I feared, would be too readily attacked by the acid. In this extremity I

"A STRAIGHT SHORE OF HIGH BASALTIC CLIFFS DROPPING SHEER TO THE SEA WITH A CRASHING SURF RAGING AT THEIR FOOT"

bethought me of half a dozen quart bottles of stout which a kind friend had donated to the expedition—my only luxury—and these, with deep regret and fitting ceremony, I sacrificed to the cause of progress, breaking off the necks and setting the bottles in the rack under the thwart, where the proper flasks had been.

"Thus invigorated by a tang of the malt in her current, Paradox condescended to turn over, and soon my auxiliary cruiser was chugging merrily before a rising gale out across Ungava Bay in the direction of a doubtful island, which might or might not afford the shelter of a harbor when arrived at.

"As the morning advanced we (i. e., Experiment, Paradox and I) began to encounter ice—at first a few scattered pans only, then larger floes with miniature sounds of open water between them. Before long the ice predominated and open water was present only in leads of from a few yards to a few hundred yards in width, which opened and closed and altered their shape and direction with every whim of the treacherous wind-driven currents. Naturally, this did not simplify navigation or hasten our progress. Soon I learned to my grief, from a desperate knockdown, that, with all the turning and twisting which was necessary, we were safer without sail—also that one was less apt to ram a pan of ice and get a hole stove in his bows when conducting manœuvres with a long steering sweep than when depending upon the rudder, especially with a non-reversing, direct-connected motor!

"The more we wormed and twisted, the more pitifully slow became our progress. Now it was past noon already, and no land yet in view ahead. The sky meantime had grown completely overcast and the range of vision was restricted to a few miles—except when blinding snow squalls narrowed it to a few feet!

"This sort of thing had been going on for hours, and I was beginning to wonder if Akpatok Island was really approachable, or even in existence, when all at once a remarkable thing happened: At 2.30 P. M. we suddenly ran out clear of the ice into an absolutely open sea—and almost simultaneously the overworked engine quit dead, as much as to say: 'Now, consarn ye, I've got ye through this mess; get along the best ye can!'

"From the way the floe had 'rafted' or piled up on the edge of the open water (which, be it remembered, was the *lee* side of the ice body) I judged that this must mark the limit of a strong east-flowing current, and this idea was only too well borne out by the roughness of the water.

"Experiment tried to stand on both ends at once, and behaved so scandalously in general that to work on the engine was out of the question; wherefore, I hoisted the foresail again. The stout mast creaked under the wind's weight; the heavy fabric of the sail stretched almost to bursting, and Experiment bounded ahead so fast that my tentlike forward spray-cloth was insufficient to prevent her from shipping water over the bows, as she burst through the steep, crested seas of tide rips and overfalls.

"Plainly, this would not do. I lowered the sail half way down the mast and made the sheet fast to the heel of the mainmast. Thus relieved, Experiment proceeded with less enthusiasm, but greater comfort.

"While everything was temporarily serene, I abandoned the helm and fired up my portable cook-stove. A lunch of pork and beans, strong tea and hard bread drew the chill from numbing limbs and put new heart into me. But the best was yet in store, for when I emerged from the hooded forepeak land was actually in sight. A dreary, stern old headland, very high and 'clifty,' from all appearance, loomed out of the murk and welter on the lee bow some 5 miles away, with the surf flashing at its foot.

"So I had hit the mark, at any rate—but just barely. Yet, in one very important regard, this landfall was ideal: being to windward of the northeast cape of the island, I had the choice of following whichever shore I chose in search for a harbor—which, by the way, was something now greatly to be desired.

"This very choice became no small problem. The wind by this time had backed sufficiently into the north to make a weather and a lee side to the island. Now, there was no question in my mind which side a professional sailor would have chosen to coast along, but the more I studied the problem the more I became convinced that here was a case where the general rule did not hold good. I was more afraid of getting blown out to sea from the lee side of the island than I was of getting blown ashore on the weather one. To put it another way, I deemed it wiser to have land under my lee, although I might get wrecked upon it, than to have nothing but open water and ice—in which we would surely perish should Experiment's powers in working to windward prove as inadequate as I feared and harbors as scarce. A sailor may laugh at such a decision, but I still maintain it stands the test of logic; and logic, as you will learn, had, with me, perforce to take the place of experience.

"To tell the truth, though, I was counting pretty strongly upon finding some sheltered cove back of a promontory where I could anchor or beach the boat before darkness came on, but, after I had got around on the weather side of the island, and headland after headland had slipped past without revealing anything of the sort—while all the time the wind drew more in upon the land—I began to rue my choice. As far as one could see ahead there was only a straight shore of high, basaltic cliffs dropping sheer to the sea, with a crashing surf raging at their foot.

"Before long, the wind was abeam, and in spite of all I could do it was plain that little by little the offing was decreasing. Then the real knockout blow was delivered, for, through the welter ahead I spied a bold promontory jutting out so far seaward that I could not possibly hope to weather it.

"Now, I have confessed that I am no sailor, but my life training has been conducive to the use of reason in emergencies, and in this difficulty I resorted to the rules of logic for a solution. By a process of elimination I discovered that the only hope of salvation lay in getting the engine going again; so I made up my mind to stake everything upon that. With only a mile of offing between us and destruction, I hove the boat to, and went to work.

"First I spun the fly-wheel with compression cocks open, and made certain there was nothing wrong with bearings or piston—the engine turned over quite freely. Next, I tested the current by grounding the terminal wires on the cylinder. Thus I learned that the spark was all right. This seemed to locate the trouble in the mixing valve. Working as fast as I could without getting panicky, I took down this crude apparatus and examined the various valves—to all appearance they were quite normal.

"More than puzzled, I reassembled the mechanism. Then for the first time I allowed myself to look shorewards and see how we fared. The noise of the surf had increased quite noticeably during the fifteen or twenty minutes I had been at work, but I owe to a sickening shock on actually seeing how fast we had drifted shorewards. The wicked, dark cliffs seemed to loom almost overhead—we had come fully half the distance to their foot.

(*Continued on page* 46)

THE FORWARD DECK OF THE HOPALONG DURING OUR CANAL PASSAGES

THE UPPER ST. LAWRENCE IS AN IDEAL CAMPING GROUND

Motor Boating Through Kanuckia

Concerning the Hopalong Herself, and Her Eventful Cruise Through the Canadian Waterways and the Rideau Lakes to the Northward

By CLARENCE E. MULFORD

THE PROBLEM OF CARRYING THE NECESSARY EQUIPMENT

THE motor-boat germ is deadly and likely to attack one without warning at any time; a peculiar thing about the ensuing disease is that no matter how badly you fare there are seldom any regrets connected with it. You may be skinned, bruised, broken or nearly killed; you may be stuck in the mud all night in the rain, or have other unpleasant experiences; but your common sense is held off by some fiendish power that makes you view your discomforts lightly.

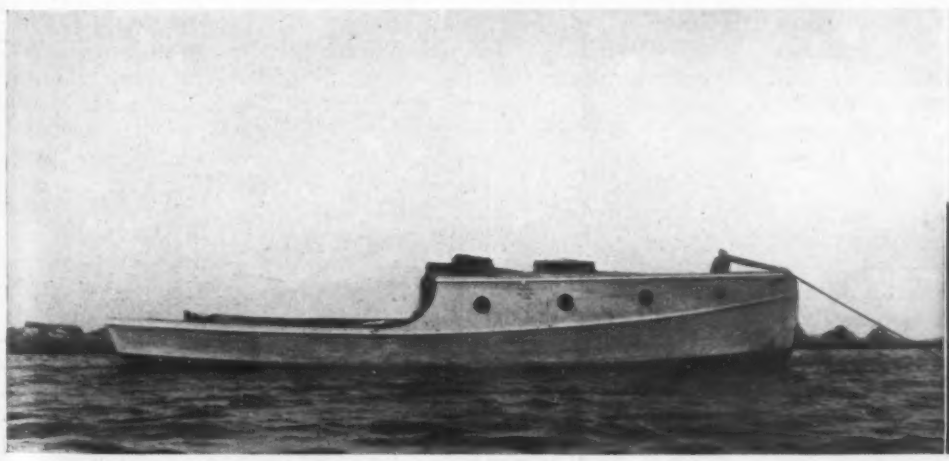
A few years ago the germ took a good, healthy bite of me, and the result was a new 30-foot, open skipjack. I was proud of that trim, clean-cut little boat and I revelled in its speed and seaworthiness, notwithstanding that it helped me to locate every mud flat and sandbar within my sailing radius and kept me on the anxious seat most of the time. I thrilled at the thought that I owned her, not realizing the horrible truth—that I did not own the boat, but that it owned me.

It was driven by a two-cylinder, ten-horse-power, heavy-duty insect of devilish intelligence. At first I thought the "heavy duty" referred to the construction of the machine, and it took me a long time to find out that it referred to the labors of the man who tried to run it. It was a peaceable, orderly, decent-appearing affair, but its song was that of a siren. All one had to do was to make it run and it would take you over the bounding waves (sand bars permitting) as far as you cared to go.

One bright day in August some friends invited me to go with them in my own boat for a run to Freeport, Long Island, and this run along the coast was my undoing. Then and there the bay lost its charm for me, and a deep, lasting sorrow entered my life. I must cruise, and over great distances. The winter brought advanced stages of the malady, for I began to draw plans on paper and send for charts, with the result that it was not long before the plans were in the hands of a boat builder, and every mail brought more charts. The plans provided for converting the Hopalong into a cruiser by the addition of a 17-foot, raised-deck cabin forward containing four berths, a galley and a toilet; in the after part of the boat there would be two 30-gallon gasolene tanks and a 24-gallon oil tank. The lighting system was to be electric, as was the siren. The equipment of the boat came next, and then the problem of carrying it all and leaving room for the "crew."

The charts came from Washington, Detroit, Ottawa and Montreal, but those from Detroit were much prettier and were my favorites. On assembling them I found gaps in their continuity that bothered me, but by persistent searching I finally filled the gaps by appealing to boating magazines, and when they were all at hand they filled two rooms.

All this time I had been trying to get together a congenial



THE HOPALONG WAS A 30-FOOTER, OF SKIPJACK MODEL

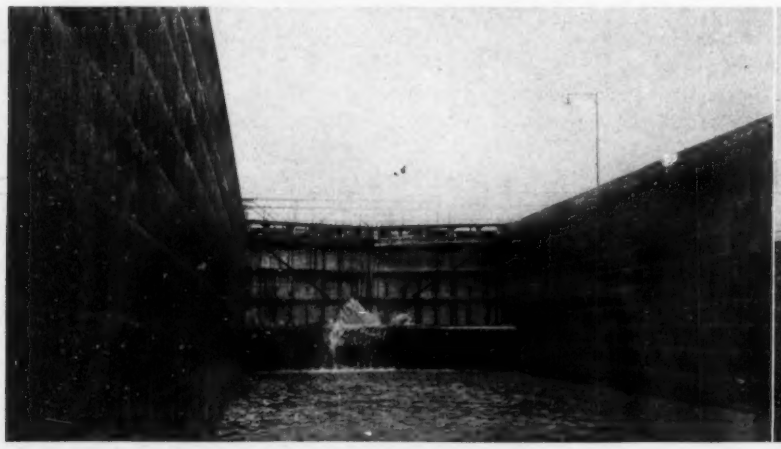
WAITING TO ENTER A LOCK IN NEW SOULANGES CANAL

"crew," and spent my spare time in writing eloquent letters to my friends. The result was that Eddie Schroeder would leave the State of Illinois to cast his fortunes with me; Charley Rains was patiently waiting in Cincinnati, and Johnny Bulger, of Brooklyn, began to figure on how little baggage he could exist with. When the fatal day drew near they were on board, each with the agreed-upon suit case and with a card tied around his neck on which was plainly stated where to ship their remains in case they could be recovered. Their blind faith in my seamanship was magnificent and entirely unwarranted.

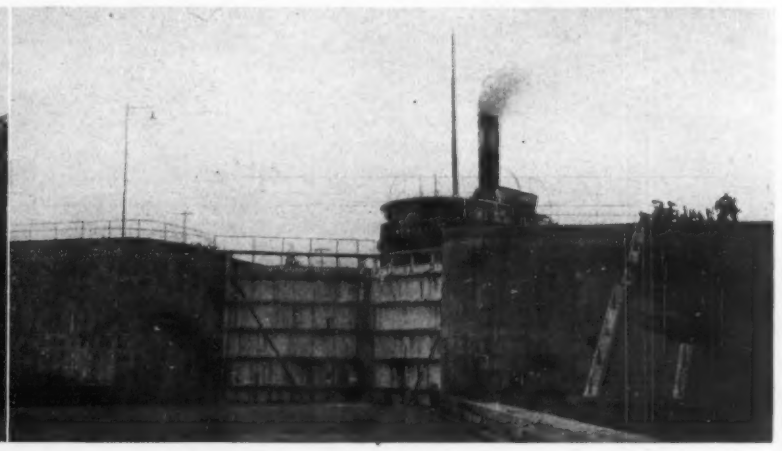
Ottawa, Canada, was to be our destination, going by way of the Hudson River, Champlain Canal, the lake of the same name and the Richelieu and St. Lawrence Rivers—quite an ambitious voyage for four men in a 30-footer. We had a more or less (mostly more) eventful passage of these waterways, but as this part of the trip is pretty well traveled and well known, and has been "written-up" pretty freely, I am going to "can" the account of it for some time when I haven't so much material on hand, and start in at the St. Lawrence River, where we swung into it from the Richelieu at Sorel.

It was after eleven o'clock in the morning when we left Sorel, lamenting the time lost at St. Ours, for we had hoped to tackle the currents of the St. Lawrence River at daylight, so that we could reach the basin at Montreal, only 45 miles away, that night.

If there is any finer river than the St. Lawrence it will have



INSIDE OF LOCK NO. 3, NEW SOULANGES CANAL



STEAMER LOCKING THROUGH LOCK NO. 3

to be proved to us. I admire the Hudson and the Mississippi; but here is a river that is in a class by itself. Its waters are beautifully clear and sparkling and the day we first saw it they were driven before a strong west wind, raging under their caps of white. Wide, deep and swift, it slips along with the stealth and sureness of some great, soft-footed jungle cat. Clean banks of sand gleam before the velvety greens of their backgrounds, with here and there groups of houses and quaint windmills between the sleepy villages along its shores. Great numbers of buoys stand like some forlorn line of telegraph poles ravaged of their wires and reel under the savage thrusts of the currents like drunken soldiers in a wavering line. The lighted buoys burn day and night, the fixed lights glaring at you and the occulting winking gravely at regular intervals. How they careen and bob and dance at their huge moorings, buffeted savagely by a current that knows no mastery!

Isle St. Ours was passed and we entered the graceful sweep of Bellmouth Curve, finding the river four miles wide and every foot of it alive with currents. Up the lane of spars we sailed, red to starboard and black to port, and soon the river attained a dignity of five miles across, with here and there an islet pushing up from the turbulent waters. Hugging the south shore are low, marshy islands of grotesque shapes dotted with tall range lights. When we passed Vercheres the chef and the steward were asleep in the cabin and the engineer snored near the oil tank. Astern came an ocean liner, the first we had seen since leaving New York, the green water foaming white around her sharp bow; her black smoke, torn from the funnels, was flattened and jerked astern to be torn into shreds by the wind. Overtaking us, an officer on the bridge sent out crashing roars in reply to our salute and awakened the engineer long enough for him to grin at the row of happy faces along the rail.

Soon the river grew narrower, the current became swifter and the buoys danced faster. Isle St. Therese went past and the pretty village of Varennes lay astern, its twin spires of silver flashing in the sun. When Pointe aux Trembles came into sight the hour was late and we decided to anchor well off the white-washed wall. For half an hour after our heavier anchor touched the bottom in six fathoms I watched the shore to see if it was holding. All night long the cable rattled on the windlass and the water rushed past with an audible swish that put us to sleep like a lullabye.

We overhauled the engine before we turned in, but next morning, as we neared the little dock at Hospice St. Benoit, it had an attack of cramps and we moored to the handy structure. As the chef and steward would not pass Montreal again, they took this opportunity to go ashore and see the city, promising to rejoin the Hopalong at the third lock in the Lachine Canal.

Under way again, we passed Forsythe Shoal, where the buoys acted worse than ever, and as we neared Laurier Pier we rolled up our sleeves, figuratively speaking, and prepared for trouble. The water rushed past as though gone mad, submerged currents boiling to the surface and spreading out in oily circles. A huge log bore down upon us, shot here and there, tossed and toyed with as though it were a match. We were making about a mile an hour now, with the engine running perfectly. Soon men fishing on the embankment forgot their sport and watched us, loiterers and passersby joining them. From time to time I glanced at two posts and grew peeved, for they hardly moved.

I kept as far from the wharves as I could, for over there the current was swiftest and I could not get close to Isle Ronde because of a dredge and its anchor cables, which hardly slanted at all. Finally we drew even with the dredge and stuck there. The range posts did not shift any more. Minute after minute passed as I sidled toward the shore and back to the dredge, but there were no slack currents in the St. Mary. Boats went past us down stream as though sliding down a chute. I glanced astern to see if any were coming up, and grinned at a tug worrying along with a canalboat in tow that acted like a balky calf.

"Here's where we trick the current," I said to the engineer. "That canal boat's making something we can use. When I nod my head you ask its captain to take our line. He won't do it, but we don't care."

Slowly the tug pushed past us, making very little better time than we were. After a long time two great hawsers crept by, their strands playing eloquently, and then the blunt bow of the scow came into sight. I edged toward it and was within six inches of a fender when the cabin cut into my field of vision, whereupon I nodded emphatically. Rope in hand the engineer stood up.

"Take our line?" he shouted.

The bargeman shook his head regretfully, but I grinned at him because my range posts ashore were shifting, and because the barge no longer passed up; we were eating up the inches with it. The tension had relaxed enough for me to laugh at the tugboat's crew, who chuckled over our stratagem and playfully shook their fists at us. When the Victoria Pier was reached we shot away from the scow and entered the basin below the locks.

The engineer's face bespoke curiosity: "What happened?" he blurted.

"We stole her suction, that's all," I answered.

"Gosh!" he muttered, and then a grin slipped over his face. "Mebby we won't go through there like a scared cat through a hole in a fence when we come back!"

As soon as we entered the Lachine Canal the engine balked and made us miss our turn through a railroad bridge draw, whereat I eased myself of a lot of accumulated language; but the engineer stopped me. "Mul, it makes no difference now," he said. "But in the St. Mary it would have made a lot, an' back there she never missed once, but gave us about three horsepower above her rating. I've been pretty mad at that engine myself, even when I knew it was all our fault; but never again! What do *we* know about engines, anyhow? She's never got cranky in a pinch, an' you know it!"

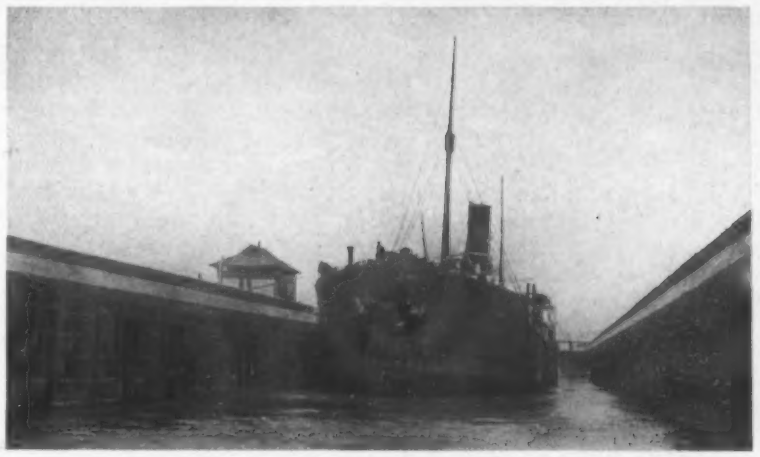
He was right, for our engine troubles were squarely up to us. We went at the machine with even a little cheerfulness and soon were under way again, held up by every lock and bridge. The Lachine Canal is tricky because of the spillways from mills and factories. Their currents shoot out from the bank with quite a little force, but the worst they will do is to jolt a day-dreaming skipper, and they look more ferocious than they are. When we reached the third lock we picked up the steward and chef and soon reached the shallow harbor of Lachine and made fast to concrete pyramids near a boatbuilder's shop, where we had pleasant company all evening.

Next morning the chef and steward, who had returned to Montreal the night before to see the sights and came back late, did not want to turn out, but reconsidered hastily when the engineer wanted to douse the last one up with ice water.

As we sailed across Lake St. Louis I had my breakfast on the cabin roof as I steered, and had to eat it in sections because there was not room enough on the "chart deck" for a whole meal at once, which secretly pleased the engineer, because it gave him a whole side of the table to himself. I presume we had eggs that morning—we usually did; but it was no fault of the chef, for he always asked us what we wanted. Chops and steaks were not strangers to us, but the egg habit is easily acquired.

For some time we had been picking winged bugs off our faces and now we became peevish. There were thousands of them and they kept us busy. If you picked one out of your ear it would fly around and crawl in your mouth or nose. The water was black with them as far as we could see and they all wanted a ride. But their attacks could not spoil the effect of that scenery, for the lake

WHERE THE LACHINE RAPIDS BOIL OUTSIDE THE CANAL BANK



AN OCEAN TRAMP IN A LOCK OF THE NEW SOULANGES CANAL

stretched around us, wide, green and clear, the St. Lawrence on this side and the Ottawa on the other. Nun's Island, with its historic mound and cross, went past and soon we noticed the sharp line that divides the brown water of the Ottawa from the green flood of the St. Lawrence.

We were bound up the latter and ahead boiled the Haystack, Split Rock and Cascades Rapids. The boat began to get cranky, the big steering wheel fighting me one moment and relaxing the next. There is an eddy below Cascade Island that kept me busy for a minute and then I make a generous allowance for the sideways thrust of the small but strong current flowing behind it. This latter is called Les Faucilles and boasts of a canal as venerable as it is small and short, for it was built in 1779, is about one hundred yards long and cuts across the southern point of Pointe des Cascades, where the fur traders escaped the boiling waters of the Haystack. In another minute we were moored to the wall of the New Soulanges Canal and looked north at that part of the Ottawa that comes down along the western side of Isle Perrot.

The new Soulanges Canal is wide and deep, with great locks manned by courteous men who can not do too much for you. When we left Lock Four the tender smilingly told us we were allowed a minimum of ninety minutes on the next level, which is a long one. On this run we were amused by numbers of great, fat crows that kept just out of range of the air rifle the engineer tried to conceal. He soon gave it up in disgust and remarked that they had a lot more sense than some people he knew. We asked him no questions.

This canal overcomes three rapids, is 14 miles long, 150 feet wide, has one guard and four lift locks, and its total lift is 85 feet. The water is clear and has a slight current, and the banks are kept up like a park. The bridge opened promptly and we commented upon it, for we were beginning to have a very strong liking for the Dominion and its ways; and the more we saw of it the more impressed we became.

Next came a run of 32 miles across Lake St. Francis, for the first half of which I had no chart; judging from the chart of the other half the bars were numerous and came unpleasantly close to the surface. There was a strong head wind and a storm threatened, so we opened the throttle and ran at full speed. After we passed Lancaster Bar Light our chart came into play and the rest of the way was easy. Islands now began to appear and we passed many close by, fighting a current that grew stronger constantly. On all sides fish broke water and made us itch for the feel of our rods.

"Look at that whopper break to port!" cried the steward excitedly.

"Say," said the chef, "don't you know the Secretary of the Navy has stopped the use of 'port' and 'starboard'?"

I grunted: "It takes more than an order to stop some things. Everyone I know laughs at him and keeps right on using the old

terms. When a doctor or a farmer gets the Navy to play with he must be well balanced or make an ass of himself. 'Port and 'starboard' mean one thing; 'left' and 'right' another. The first two are constant and refer only to direction according to the position of the boat; the others are personal and refer to the speaker, and not necessarily to the course of the boat. If you are looking astern "left' means the opposite to what it does if you are looking for'd; ' port' never varies and means left when the bow of the boat is faced. If I tell you to look to the right or left you instinctively look to your own right or left, no matter how either of us are facing; and if you see nothing you turn around to see how I face. We both can be facing in any direction and when I say 'port' or 'starboard' you know instantly the exact direction meant. It tends to save valuable time in a crisis."

"Gosh; you're right!" exclaimed the engineer, trying it for himself.

"Certainly," I growled. "I am waiting for an order changing 'for'd deck' to 'front yard,' 'bilge' to 'gutter' and 'stern' to 'hind end.' I wouldn't be surprised to know that 'Admirals' are 'Managers' and 'Captains' are 'Superintendents.' Perhaps 'bridge' will be changed to 'verandah,' 'crow's nest' to 'cupola,' 'hold' to basement,' and 'sailors' to 'help.' This is a boat, not a farmyard, and the old terms will be used as long as I own it."

We were getting into swift water again and night was not far off when we were struck by one of these sudden St. Lawrence River squalls and, not being able to see any distance, we ran to a group of three islands, known as The Crabs, and anchored for the night.

The next morning the short run to Cornwall was made in a rain which did not cease until after we moored in the canal and the crew went ashore for supplies. When the engineer returned to the boat he had on a plaid, woolen shirt that was as fantastic as it was warm, and for the first few minutes it stunned us.

Shortly after we got under way we caught the Beauharnois, an old sidewheeler, which made every stop it could, and we played tag with her for the rest of the day. When we could we entered the locks after her, but once we had to go in first and were pounded unmercifully against the wall when she reversed her paddles to check her headway.

After crossing Sheek Island Basin we landed on the south bank for a look at the Long Sault Rapids. The river is not more than 500 yards wide here, but it makes up for that by the way it goes past. Great billows, crested with foams, stretch across it like terraces and the green water boils and swirls madly under its cap of white.

There is one thing about St. Lawrence River canals that makes life exciting for the skipper of a motorboat; they all begin and end close to the rapids, and it is no easy matter to enter from below, and no reassuring sight awaits you above when you leave them. As you sail out and see a sheet of water half a mile wide that slants like a cellar door you keep one eye on it and one eye on the engine, thereby flirting with a cross-eyed future. There is something so ominously silent and business-like about that water that it claims your attention. And if you are curious enough to walk to the end of the canal wall and look down at the mortar joints you become instantly thoughtful; any big stream that drops down the first two-foot layer of stone in a distance of 10 feet is nothing to play with.

Usually at the foot of the canals you must run along the farther bank and stick the bow of your boat into the rapids, or entirely too close to them for comfort, and then, hoping nothing will break, put out and watch the bank shrink rapidly. You land, if you are lucky, close to the canal entrance and whirl around its outer wall with a sidewise sweep that is very disturbing. There are devilish eddies at the foot of a rapid that make you dream about them, and wonder what is lying in wait for you on the morrow.

We were now past Delaney and Archibald Shoals, and next comes Croil Island, opposite which we hugged the north shore. Running at full speed we barely nudged ahead, and as we neared the first little point we looked for trouble from a ridge of water that slid out past it. Entering it with our bow pointing upstream we slid sideways across the river at about 6 miles an hour and did not gain a foot ahead. When we got out of the ridge we were close to the other bank and along this we crawled toward the white water of Farren Point Rapids. This maneuver was necessary because we could not have fought past that point in a week and we were forced to cross over so that, in re-crossing later, we could be thrown into the canal entrance by the currents we fought.

There is a big basin here where the currents frolic before they get down to business, and the worst of them run along the north bank, taking a playful slap at the canal wall as they scurry past. There was no conversation going on in the boat, the only sound being the rhythmic cough of the engine, which sounded well, but a little too modest. Finally we came to the jumping-off place and glanced up the rapids to see if any boat was shooting them; then we pushed off into that chaos of fighting water. Our course across that avalanche makes me smile now, but I did no smiling then; I used language that would shame a pirate. The boat tried to do its own steering and changed its mind with suddenness and force. First I would lean on one side of that big, 26-inch steering wheel, and then whirl it over like mad and lean on the other side. By this time I steered by instinct and met each changing current the instant it hit us, else we would have taken a long ride the wrong way and had it all to do over again. And when we slid in behind that canal wall we realized that the cruise would have been over if we had missed it.

Farren Point Rapids are mild, straight, and without rocks, and half of the river pours down on the other side of Croil Island; I hate to think what they would be if it were not for the other channel. I understand that the scenery along the St. Lawrence is very pretty, but no one can prove it by me. It was like the small boy who was chased by a bull and who was afterward asked how he had crossed the creek. "What creek?" asked the boy, blankly. Between Cornwall and Ogdensburg that scenery is all "creek" to me.

(To be continued.)

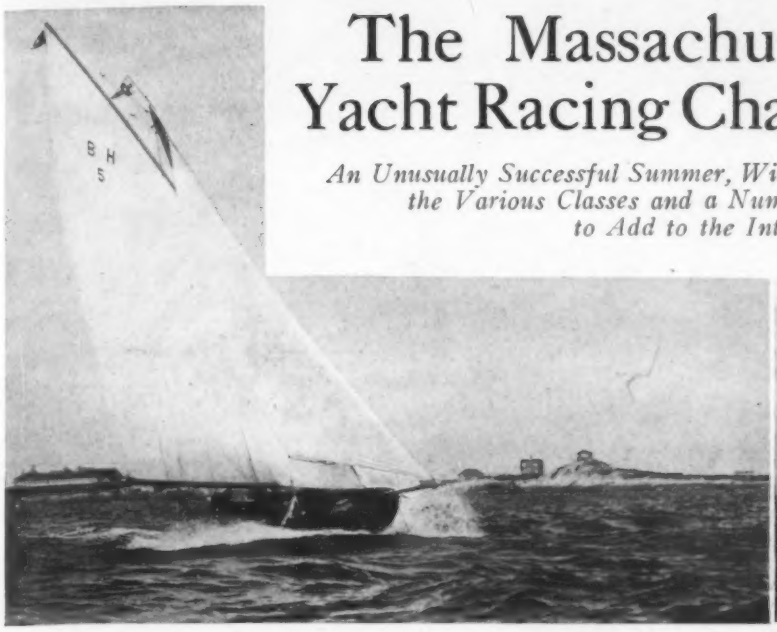
[The next installment of the Cruise of the Hopalong covers the interesting St. Lawrence, through the Thousand Islands to Clayton, all the while bucking tremendous currents and swift rapids.]

THE ONLY BASEBALL DIAMOND AT KETCHIKAN, ALASKA

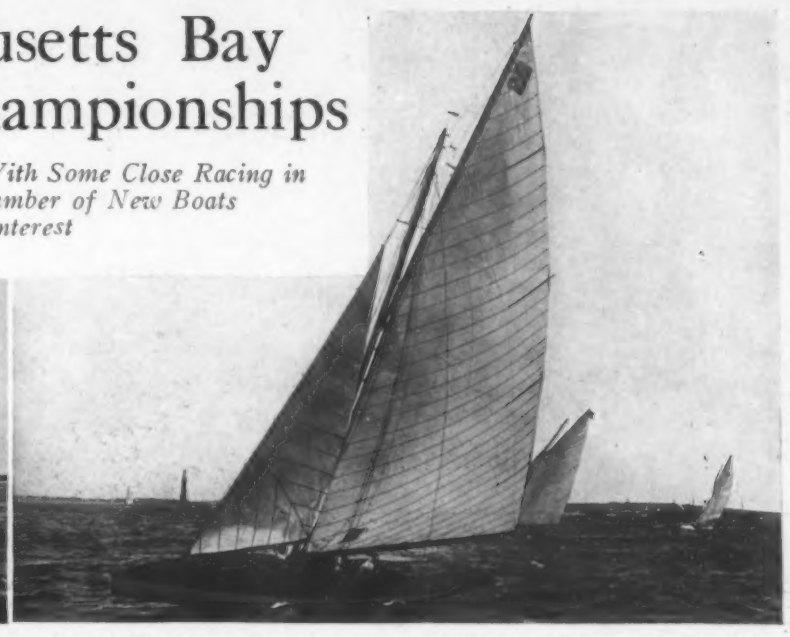
THE SAME DIAMOND AT HIGH WATER. NOTE THE GRANDSTAND, NOW EMPTY

The Massachusetts Bay Yacht Racing Championships

An Unusually Successful Summer, With Some Close Racing in the Various Classes and a Number of New Boats to Add to the Interest



MILDRED IV HAD HIGHEST GENERAL AVERAGE IN THE BAR HARBOR 31-FOOT CLASS



ROBIN, INTER-CLUB SONDER CHAMPION, LEADING CHANCE AND SALLY XI

WHILE the red-hot fight in Class "P" on Massachusetts Bay, which was described in the December issue of YACHTING, was probably the closest of an unusually successful season, the struggles for championship honors in the other classes were the most interesting that had been seen on those waters in many years. There are many championships to race for on Massachusetts Bay, such as the Yacht Racing Association Championship, the North Shore, the Corinthian Yacht Club and the Boston Yacht Club championships, in addition to the Inter-Club Yacht Racing Association of Massachusetts Bay, with its nine classes, in each one of which a championship pennant is given. A number of these championships dovetail into one another, so that one race usually counts for points in a number of championship events, and to keep them all straight frequently requires the services of an expert accountant, so that it is usually late in the year before the results in all of the various events are known and tabulated. Especially is this so if there are any protests to be decided, as was the case this year.

The "R" Class saw some excellent racing, there being three new boats to contest the championship with the Sumaki, Mr. W. K. Harcourt's 1910 racer. The boats were the Sally XII, another one of the Percival family, and the Alpha and Beta, owned by C. H. W. Foster. A very handsome trophy had been put up by the Corinthian Yacht Club for the "R" Class Championship, and the first leg on it was won by the older boat, Sumaki. This cup has to be won three times by the same owner before it becomes his personal property. Sumaki's record for the season was ten firsts, two seconds and four thirds out of sixteen starts—not bad for a boat in her fifth year. Sumaki also took the North Shore Championship, with a percentage of .863, with Sally XII second with .689, and the Corinthian Y. C. Mid-Summer Series. There is talk of a number of new "R" boats for the Bay next year, and if even a part of the talk materializes, this popular little class will be particularly well filled in 1915.

Another very interesting scrap was between the five 31-footers, all the boats originally being built to the Bar Harbor 31-foot class, and the championships were divided. Vera III, owned by H. Lundberg, won the North Shore championship and the highest percentage in the Corinthian, while Mildred IV, owned by G. P. Moses, won the Boston Yacht Club Championship. The latter yacht also made the lightest average of any of the boats in the class, sailing seventeen races and finishing with an average of .720 percent, as against an average of .623 for the next boat, Leenane.

The standing of the various boats, in tabulated form, in the Yacht Racing Association, North Shore, and the Corinthian Yacht Club championships, follows:

Y. R. A. STANDINGS

CLASS D, CAPE CATBOATS.	Starts.	Total.	Average
Clara	18	1464.0	81.3
Dartwell	18	1400.7	77.8
Iris	17	887.9	52.2
Mudjekeewis	16	774.3	45.5
Grayling	16	663.9	41.4
Dolly III	10	558.6	39.9
Almira	7	243.9	17.4
CLASS I—18-FOOT KNOCKABOUTS.			
Louise	16	1315.7	82.7
Dorchen II	16	1108.7	69.2
Reina	14	767.6	54.8
Cheroot	17	861.6	50.6
Acanthus	15	683.4	48.8
Winsome	4	271.4	20.8
Lomaru	3	86.6	6.6
Jane	1	57.1	4.3
Miladi	1	50.0	3.8
Moslem II	1	50.0	3.8
Mirage II	1	42.9	3.3
Posey	1	25.0	2.0
CLASS X—DORIES.			
Shadow	15	1404.1	93.6
Terror II	15	917.8	61.1
Bessie A	13	765.1	58.8
Naiad	13	652.2	50.1
Teaser	12	505.3	42.1
Elizabeth F	6	344.1	28.6
Zu-Zu	3	210.5	17.5
Pointer III	4	165.5	13.7
Koka	3	91.1	7.5
Bantam	4	70.3	5.8
Barbara	1	42.9	3.5

W. K. HARCOURT'S SUMAKI, WINNER IN CLASS "R"

WANDERER IV, WINNER INTER-CLUB CLASS "H"

The North Shore Championships

BAR HARBOR, 31-FOOTERS.

	Starts.	Total.	Average
Vera III	12	8,783	.732
Leenane	13	8,917	.686
Mildred IV	12	7,533	.628
Edjako II	10	5,334	.533
Flight	13	6,833	.526

SONDER CLASS.

Sprig	9	7,838	.871
Ellen	13	10,644	.819
Mingo	8	5,225	.653
Cima	13	8,284	.637
Eleanor	11	4,910	.446
Amic	11	4,625	.420
Panther	10	4,159	.416
Huskie	7	2,672	.334

BOSTON YACHT CLUB, SPECIAL RATING CLASS.

Chevy Chase	13	12,000	.923
Mirage II	7	4,834	.604
Weasel	5	2,833	.354
Idol	2	833	.104

CLASS R—20-RATERS.

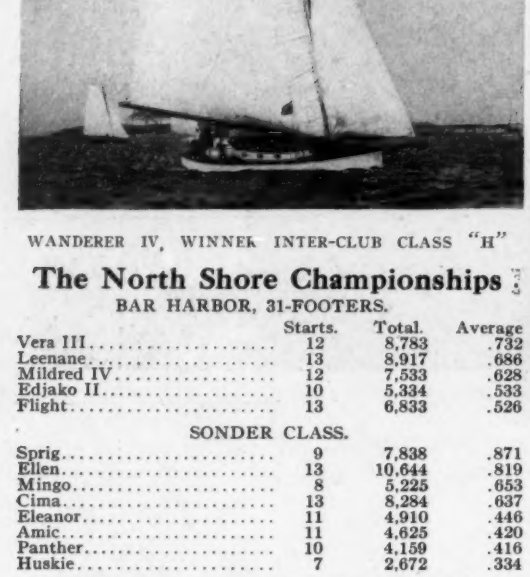
Sumaki	14	12,083	.863
Sally XII	15	10,333	.689
Alpha	10	5,584	.558
Beta	6	2,250	.225

MARBLEHEAD, 17-FOOTERS.

Lolivia	15	10,162	.677
Scarab	15	9,847	.656
Squaw	11	6,619	.602
Lolita	12	6,675	.556
Skiddymarink	8	5,013	.501
Norna	8	4,382	.438
Sarampus	10	3,491	.349
Mecoh II	3	1,610	.161

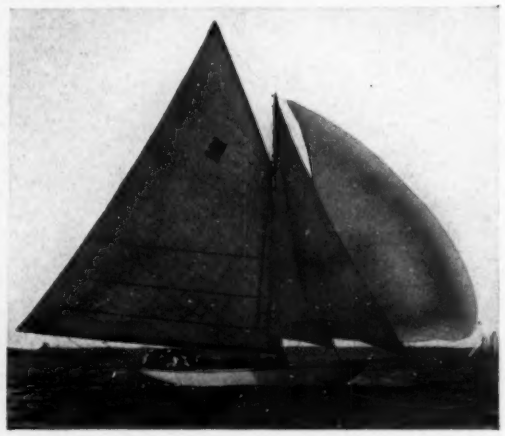
MANCHESTER Y. C., 17-FOOTERS.

Teal	13	10,617	.817
Asteria	13	9,449	.727
Minx	13	9,858	.689
Tulip	10	5,684	.568
White Wing	13	7,371	.567
Meddler II	14	7,375	.527
Kiowa II	5	3,733	.415
Ketchup	12	4,165	.347
Shad	12	3,825	.317
Palmetto	11	2,768	.252
Hiccough	1	636	.071



LETHE HAD A RED-HOT FIGHT IN CLASS "B"

ELLEN, CORINTHIAN YACHT CLUB'S SONDER CHAMPION



VERA III, CHAMPIONSHIP WINNER IN THE BAR HARBOR 31-FOOT CLASS

SONDER SPRIG, NORTH SHORE CHAMPION

MANATAQUA, CLASS "Q"

Corinthian Y. C. Championship

CLASS Q.

	Starts.	Total.	Average
Manataqua	4	3,500	.875
Little Rhody II	1	1,000	.500

BAR HARBOR, 31-FOOTERS.

Vera III	7	6,000	.857
Leenane	8	5,667	.709
Flight	10	5,500	.550

SONDER CLASS.

Ellen	7	5,417	.774
Mingo	4	3,250	.650
Cima	8	5,167	.646
Panther	8	4,166	.521
Huskie	2	750	.125

CORINTHIAN Y. C. 15-FOOTERS.

Wee Three	8	6,001	.750
Bon Soir	9	5,699	.633
Half Moon	9	5,500	.611

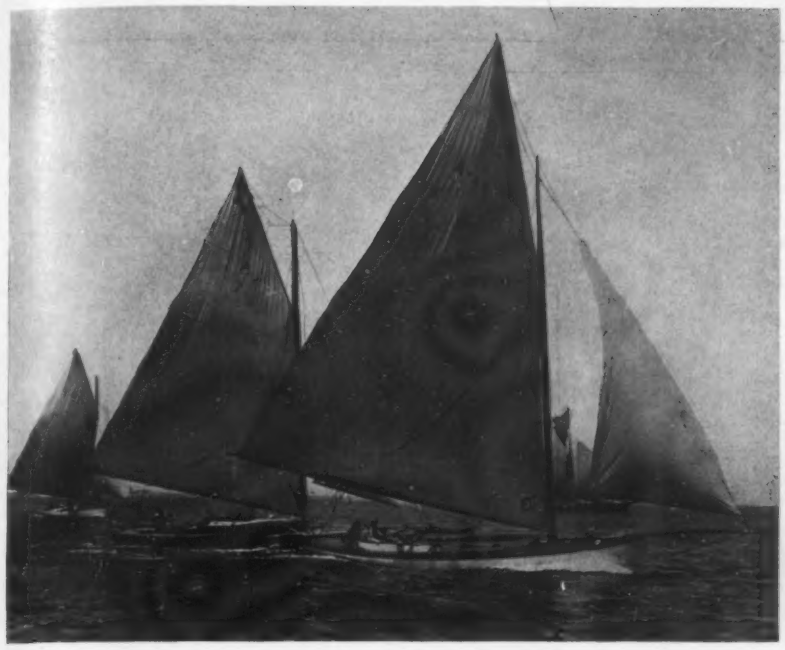
MARBLEHEAD 17-FOOTERS.

Skiddymarink	5	4,217	.843
Lolita	8	5,433	.679
Squaw	7	3,917	.559
Norna	5	2,650	.530
Sarampus	7	3,283	.469

The full results in the Boston Yacht Club championships are not yet available, owing to the absence of the chairman and the secretary of the Regatta Committee, but it is known that Pontiac, owned by Hollis Burgess, took the first special rating championship, while Chevy Chase, owned by Walter Kelly, took the second special rating. Nutmeg III won in the "P" Class, as has recently been told.

In the Sonder Class it was a red-hot

MARITZA II, CLASS "S" CHAMPION



AREYTO, CLASS "A" CHAMPION AND WINNER OF BOSTON-BERMUDA CUP

MARBLEHEAD 17-FOOT ONE-DESIGN CLASS

fight for the North Shore Championship between J. L. Saltonstall's Sprig and C. P. Curtis, Jr.'s, Ellen, the former boat winning with a percentage of .871, while Ellen took the Corinthian Yacht Club Championship. In the "Q" Class, A. W. Stevens' Manataqua had things pretty much her own way.

In the one-design classes the racing was also very close, Lolivia winning from Scarab in the Marblehead 17-footers by the narrow margin of .021 percent, while Teal led the Manchester Yacht Club fleet for the North Shore Championship.

The Inter-Club Yacht Racing Association of Massachusetts had a very successful season with a large fleet of boats racing under the association's auspices, and in many of the classes the fight was particularly keen. In Class "A," E. F. Drew's Areyto won rather easily, with Virginia and Marie L. fighting it out for second place. Class "B" saw a red-hot fight between Lethe and Sintram, the former, owned by J. J. Dyer, winning by only one point. J. W. Dammerall, Jr.'s, Halai won in Class "C," while Wanderer IV, owned by Dr. F. E. Dawes, had things pretty much her own way in Class "H." Ex-Commodore H. W. Robbins' Clara beat her old competitor, Dartwell, in the cat-boat class, "D." Clara also won the Y. R. A. and Quincy Y. C. championships. A. E. Whittemore's Louise beat A. W. Finlay's Dorchen II by 4 points in Class "I."

There was a big fleet racing in the Inter-Club Sonder Class, and Dean K. James's Robin won, with 135 points, over C. F. Stirling's Badger, with 111. In Class "S" there was again nothing to it but Maritza II, owned by C. H. Porter. This wonderful boat has won the championship in the "S" Class for three years running. In Class "X," dories, W. H. Hanley's Shadow took the championship from C. H. Levis's Terror II, and also the Y. R. A. championship.

One of the most interesting races of the year of the Inter-Club was the ocean race held on Labor Day for the $500 City of Boston Bermuda Cup, which this year went to E. F. Drew's Areyto.

Championship standing of The Inter-Club Y.R.A. of Mass.

	Points	
Class A		
Areyto	142	E. F. Drew
Virginia	125	Chas. L. Joy
Marie L	120	A. W. Finlay
Eleanor	100	W. L. Jefferson
Chewink II	97	Frizzell & Cox
Tyro	61	Hollis Burgess
Colema	46	A. B. Corthell
Class B		
Lethe	89	J. J. Dyer
Sintram	88	Mullen & Crawford
Gadfly	77	S. L. Gookin
Porcupine	52	J. W. Callahan
Pirate	21	R. S. Landers
Quakeress	16	I. R. Jones
Tunipoo	13	W. C. Treat
Chevy Chase	3	Walter Kelly
Class C		
Halai	54	J. W. Dammerall, Jr.
Sirona	45	Dykman & Henwood
Violet	44	H. J. McKee
Corneta	18	L. E. Crosscup
Thialfi	12	W. D. Soule
Class H		
Wanderer IV	122	F. E. Dawes
Winona	100	Murphy Bros.
Sinbad	95	Ralph Packard
Tavie	80	C. Tavender
Marion III	52	Montgomery & McLean
Brownie	41	T. J. Murphy
Rambler	36	Kinneburg & Burr
Katrina	30	E. S. Woodman
Imp	26	W. D. Lane
Idalia	21	D. M. Wiseley
Zidana	17	Homer Bros.
Class D		
Clara	128	H. W. Robbins
Dartwell	123	I. M. Whittemore
Iris	88	F. F. Crane
Mudjekeewis	84	E. W. Emery
Dolly II	60	W. W. Arnold
Grayling	72	C. V. Nickerson
Almira	22	H. A. Jones
Class I		
Louise	106	A. E. Whittemore
Dorchen II	102	A. W. Finlay
Acanthus	82	E. M. Morse
Cheroot	81	E. & R. S. Hendrie
Reina	74	W. P. Karshick
Mirage II	25	J. W. Olmstead
Sonder Class		
Robin	135	Dean K. James
Badger	111	C. F. Sterling
Sally XI	94	Gordon Munro, Jr.
Harpoon	92	W. D. Lane
Nineete	49	C. F. McDonald
Caramba	47	Chester Pyne
Beaver	24	Leon T. Allen
Tomboy	16	P. Dacey
Class S		
Maritza II	91	C. H. Porter
Wawenock	70	Hayes & Sargent
Zoe	66	F. J. Stewart
I. X. L	41	T. Edgar Smith
Winneahdin	39	Jas. Spratt
Gaby	20	Geo. W. Glover
Bobolink	14	G. L. Bean
Class X		
Shadow	126	H. Graham
Terror II	86	C. H. Levis
Bessie	84	Henry Van Dongen
Naiad	70	Geo Lee
Teaser	62	A. T. Dalrymple
Zu Zu	44	C. H. Martin
Ko Ka	41	L. O. Watts
Elizabeth F	27	L. H. Brown
Pointer III	21	J. F. Farrell

CATBOAT CLARA, WINNER OF THREE CHAMPIONSHIPS

CHEVY CHASE, CHAMPION BOSTON YACHT CLUB SECOND RATING CLASS

THE LOW-LYING, PALM-FRINGED FLORIDA GULF COAST WHERE THE TRADE WIND CLOUDS DRIFT OVERHEAD

Through Biscayne and Florida Bays to the Gulf Coast

A 300-Mile Stretch Among Mangrove-Covered Islands and Coral Reefs, Where Fish Are Plenty and the Many Snug Anchorages Make an Ideal Cruising Ground

AFTER arriving at the St. John's River on the way South one begins to feel that he has arrived at his destination, even though Biscayne Bay is still 310 miles away. For he is alredy in Florida, his ultimate destination, and from there down every mile of the way is through the waterways of that semi-tropical State.

On leaving the St. John's River the way leads through dredged canals and channels following the coast and the lines of the Halifax and Indian Rivers. In the Halifax River, south of St. Augustine, the shallowest water on the whole trip is found, but boats drawing three feet should be able to go through without any trouble, and with the aid of a local pilot, four feet can be dragged through. To avoid this stretch some boats go outside from St. Augustine to Mosquito Inlet, a distance of about 56 miles, though the bar at Mosquito Inlet is hard to run in an onshore breeze.

Miami is at the head of Biscayne Bay, which is the real winter cruising ground of Florida, and from here one can make the run to Key West inside the coral reefs, or around into the Gulf of Mexico and the delightful cruising ground of the lower west coast, which is but little known. Though the water is shallow, this part of the west coast is particularly attractive. Here are found some of the finest fishing grounds of the United States, and the country is sufficiently wild to make certain kinds of game plentiful.

There are two routes from Miami to Key West. One runs just inside the low coral reefs along the edge of the Gulf Stream, but outside of the islands or keys. This is known as Hawk Channel, and is navigable for a draft of 10 feet. It is fairly well marked by beacons and buoys. This is the most direct route, the distance being 136 miles. The outlying reefs protect it so that, except in a few places, smooth water is generally had.

The other route is inside the keys, but the water is shallow, and boats drawing over 4 feet would have trouble getting through parts of Biscayne Bay, Card Sound, Barnes Island, Blackwater Bay, and the other shallow waterways. It is, however, very interesting, and there are many harbors along the way in the lee of the various keys, which afford good protection.

BASIN AT COCOANUT GROVE, FLORIDA

The Hawk Channel is the best for large boats, and no difficulty will be had in navigating it, while good anchorages are found at Caesar's Creek, Indian Key, Boot Key Harbor, Newfound Harbor Keys and Boca Chica. On arriving at Bahia Honda (100 miles from Miami) by the Hawk Channel route two ways are open to the cruiser for the run to Key West. One continuing down Hawk Channel, outside the keys, there being no sheltered passage; the other, through Big Spanish Key Channel and the Gulf of Mexico. The former is the more direct, it being only 33 miles from Bahia Honda to Key West—a run of 3 to 5 hours, depending on the speed of the boat and conditions, while the distance by

A STRETCH OF THE CANAL SOUTH OF MAYPORT

BISCAYNE BAY YACHT CLUB AT MIAMI

way of the Gulf of Mexico is 49 miles. The choice of the two routes depends largely upon the direction of the wind. With a northwester, the Hawk Channel would be preferable, while with the wind from the southerly quadrant the route by the Gulf of Mexico, in the lee of the keys, would be the best.

The new East Coast Railroad now runs down to Key West, the road being built along the line of keys and over viaducts between them, but there are several draw-bridges at the principal channels, so that one can get through from Hawk Channel into Florida Bay. After leaving Mosher Channel, however, which is east of Bahia Honda, there is no place for a masted vessel to get through, while Bahia Honda is the last place that any boat of any size can get through, there being a clearance under the railroad bridge of 23 feet at mean low tide. The tidal currents run very swiftly through these openings.

In using the inside course, one will find many narrow cuts and passages between the keys, but these are usually staked out and are easily found if navigating carefully. There are many sheltered anchorages, one of which is at Long Key, where there is an excellent fishing camp and good fishing to be had.

Key West itself is very interesting and much like a foreign city, the majority of the population being Spaniards and Cubans. It seems to be just waking up after many years of quiet, colorless existence, and has frequently been called a "paradise for lazy men." It is well worth a stop of several days. The harbor is west and north of the city, which is on the west end of the island, and there is plenty of water in it. The Navy Department has a station here, and there are several shipyards and marine railways where repairs can be made, while supplies are plentiful.

THE RIVERS OF THE LOWER WEST COAST ARE WELL WORTH AN EXPLORING TRIP

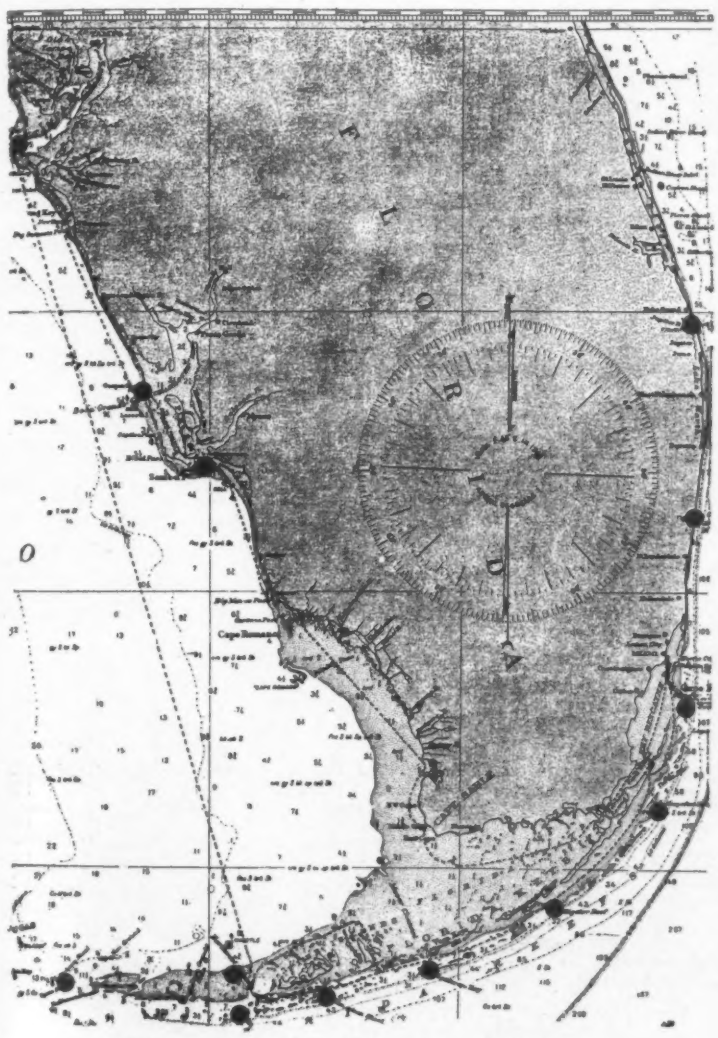


CHART OF THE TIP END OF THE UNITED STATES

It would be a shame, however, to end the cruise at Key West and not explore the lower end of the peninsula from Cape Sable up to Charlotte Harbor and Tampa Bay. The water is very shallow and a light-draft boat is essential, one of the best type being the broad, shoal-draft house boats drawing not over 2 or 2½ feet. There are many shallow rivers running back from the coast, some of them being the Caloosahatchee, the Peace and the Broad and Rogers Rivers. Some of the points of interest are Big Marco Pass, inside of Cape Romano, Pine Island Sound, Ten Thousand Islands and Charlotte Harbor, while the alluring Everglades can be reached through the Harney River or from Miami, on the East Coast, by the new dredged canal.

Tarpon fishing in the southwest coast, especially in the spring of the year, is the best that can be found anywhere, and throughout all the keys and bays of the Lower Florida peninsula, a great variety of fish can be taken in almost unlimited quantity. Along the reefs or in the deep cuts, grouper, turbot, pork fish, red snapper, red-mouthed grunts, yellow grunts, porgies, snappers, angel fish and jew-fish can be found. They are so plentiful that on a clear day you can often see fish swarm up after the bait. Trolling inside the line of reefs one can get king fish and barracoutas.

It is safe to say that anyone who has once been down among those green mangrove-covered islands, set in a sea of deep blue, will feel the call of the Florida Keys come back to him year after year as the cold weather makes him long for the land of perpetual summer. To those who have not been there, this brief description of what the coast offers in the way of a cruising ground, and of its many attractions in the way of fascinating scenery, good fishing and climate may awaken a desire to cruise among the keys.

How to Build the 22-Foot Auxiliary Cat Punkin Seed

By RICHARD B. COOK

FROM the lines on the floor we may now get a pattern for the false keel and deadwood. The outside of the rabbet happens to be identical with the top of the false keel. Referring to the last item under half breadths in the Table of Offsets we find "outside rabbet" again. This we have used in the body plan, and it may be taken as the width of the false keel at the top. The taper in the siding of the keel amounts to very little and can be scaled closely enough from the plans. In boat shops a template is usually made of ⅜-inch pine for the sheer of the keel. This is laid on the lumber when the keel is being worked out. It is better than a paper pattern, as it will not fold, wrinkle or tear.

Before the lines are erased from the floor be sure to make patterns of the rabbet bevels. By squaring across the ends of the planking lines at the keel in the body plan you will have the angle the garboard makes with the keel. Make a wooden template for each of these bevels and mark the station number on it, or transfer each one to a bevel board by using the bevel square. This is a big help in cutting the rabbet in the keel, which can then be done while the keel lies flat, before being set up. By carrying the various waterlines back a couple of stations you can do the same thing for the stem. Fig. 5 gives an idea of this.

Fig. 3 gives the siding, or width, of the plank keel at the various stations, also an idea of how it will look when the frames are in place. The dimension 19 feet 10 inches is the length when laid flat. Be sure to mark the center line on the keel and, to keep from losing it later on, mark it at intervals with a few tacks, or rase the line in.

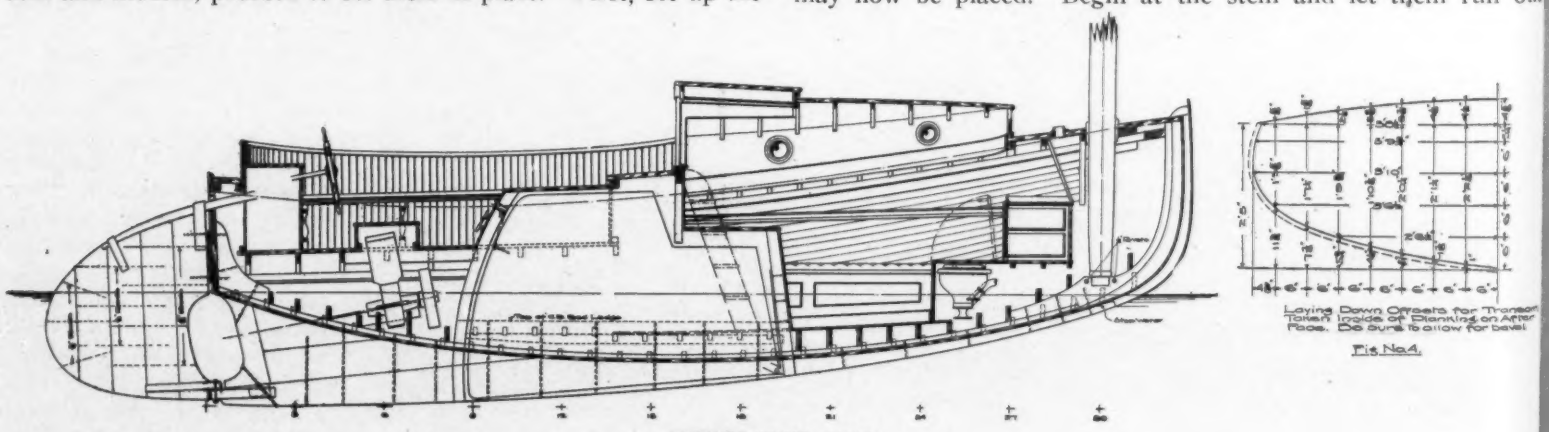
Fig. 4 gives the laying down data for the transom, which is not found in the table of offsets, the pattern of which can be made of paper. The dimensions given are to the *inside* of the planking on the after face. Of course, the forward face will be wider, and its bevel can be found from the rabbet, deck and water lines on the floor. The transom will have to be in at least two pieces, and can be fastened together with dowels, or a tongue may be inserted. When the transom has been worked out there should be screwed to its inner face a sawn frame carrying out the bevel of the edge. This is particularly to secure the fastenings of the upper planks, as that part of the transom is end wood and fastenings would not hold well in it.

Fig. 5 shows the pattern of the stem and I have specified an oak or hackmatack knee for this. It is not always possible to get a single knee of this size, unless a very thick one is bought and resawed, so a neat scarph may be made at the upper end as indicated on the plan. If this is secured with four ½-inch clinch bolts it will be plenty strong. Do not use spruce knees anywhere in the boat, as they rot quickly.

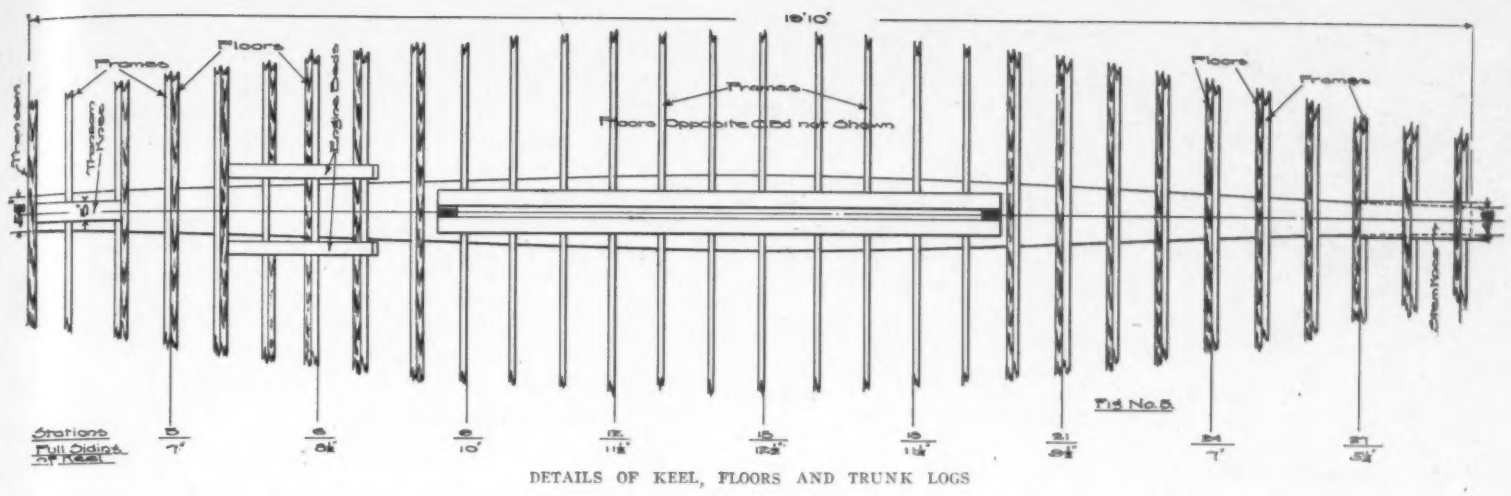
Setting Up

Having gotten out the keel, outer keel, deadwood, stem, transom and moulds, proceed to set them in place. First, set up the outer keel and deadwood with the water line horizontal. If the keel is set up on the ground good, firm blocking will be required, as shown in Fig. 11, to avoid settling. If you have a floor to work on, the keel may rest on 4 x 4's on end, with braces nailed to the sides. When the keel is in place and tested for straightness it should be nailed to the blocking and the pieces of the blocking to each other, so that a good, stiff jolt will not throw it out of line. Next spring in the plank keel, and at the same time fit the stern post, which is mortised and dowelled to both plank and outer keel. Line up the keel carefully and put in place the ⅝" and ½" bolts, which do not pass through the centerboard trunk framing, being sure to stagger the after pair to clear the shaft. Paint all joints thoroughly with thick white lead and oil. Now cut the centerboard slot and get out the beds and head ledges. Fig. 6 gives a good idea of this construction. There is a difference of opinion as to the best method of building a centerboard well. Some builders prefer to rabbet it, while others use a tongue and groove joint, but I think the easiest way for the amateur to secure a tight job is that shown in the drawing. The point to watch is the curve of the bottom of the beds, as this must fit the sweep of the keel. All necessary time should be given to this job, as it is important. First make a template of thin white pine, and get out the beds from that. They will not fit *exactly* at once, so take one at a time and mark on the keel where the end comes, so it may be replaced each time, and then paint the keel under the bed and press together. Wherever the paint shows on the bed are high spots which will have to be shaved down. Repeat the operation until the fit is perfect. Blue chalk may be used in place of paint. (This operation of fitting will be useful for other joints later on.) Now insert the head ledges and rivet them to the keel; then lay along smoothly a strip of canvas soaked in thick white lead and oil, both where the beds are to joint the keel and along both faces of the two head ledges, tacking the ends of the canvas to the tops of the heads. Put the beds in place, clamp down and bore for ½" bolts, counterboring first in the beds. Take up the nuts with a socket wrench which fits the counterbored hole, and tighten up until the lead squeezes out along the seam; then cut off the bolt, rivet it with a light hammer and plug the holes top and bottom. The remainder of the trunk, consisting of 1¾" cypress planks about 9" wide, is built up on the beds and secured by ⅜" drift bolts, and also riveted to the heads with ¼" rivets. Place a piece of lead or canvas in each joint.

Now set up the stem and transom, checking the over-all length with a steel tape. Be careful to plumb both before bolting in place. The moulds may now be placed and secured by supports from the floor or rafters. Great care should be exercised in plumbing up. Keep the plumb bob on the mould all the time it is being fastened in place, and be sure that it is square to the center line. Check up the center line all along. The ribbands may now be placed. Begin at the stem and let them run out



CONSTRUCTION PLAN



DETAILS OF KEEL, FLOORS AND TRUNK LOGS

over the transom. The ribbands should be of spruce, about 1" x 1½", and five or six to the side. They should be in one length if possible, though a joint may be made with a piece of the same material about three feet long on the outside. The ribbands should be finally fastened in place with screws, as nails are apt to draw when the frames are being fitted, though they may be temporarily secured with wire nails. All the time the ribbands are going on continue to plumb up, and do not go a step further until you are sure your frame stands true and square. You can never correct an error of this kind later on.

Boring the Shaft Log

Right along here—anyway, before the garboards go on—I would suggest boring the shaft hole. Like a good many other difficult details, this goes off smoothly if approached with proper respect. It is a good general rule never to consider any part of the work too trivial for careful attention.

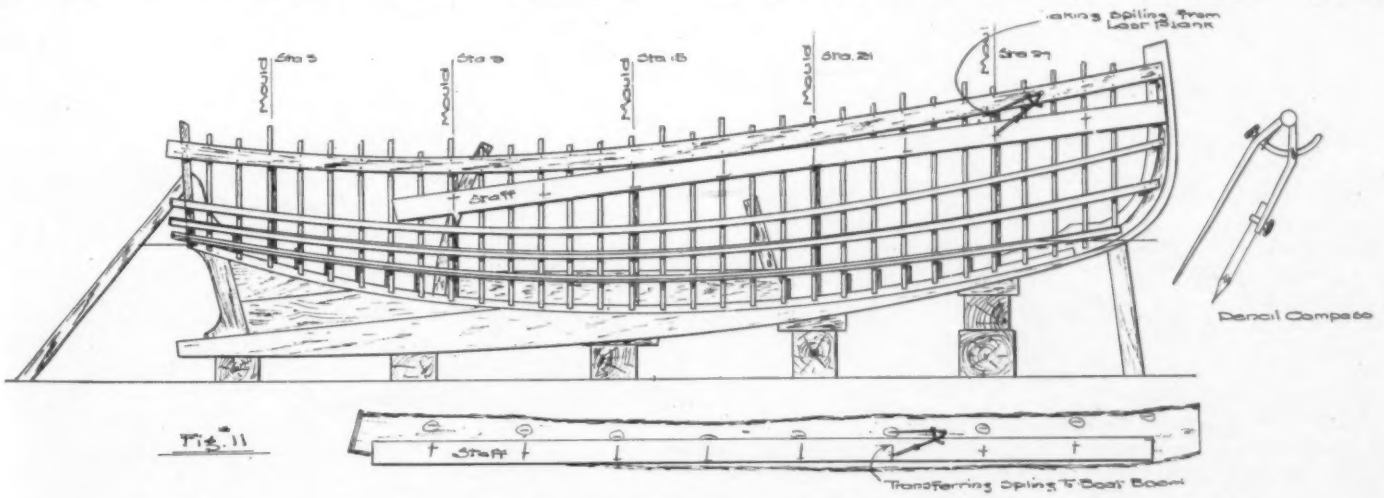
If you have made no change in the engine you can take the shaft line direct from the plans. If you have decided to get an engine of different dimensions, get the builder's catalogue and make a paper template to the scale of the plans from the dimensions given. Place the template on the drawings and move it about until all the clearances are sufficient, then draw the shaft line on the plan. Check up and see that the propeller will clear, and transfer the shaft line to the deadwood. Square it across the keel and stern post, marking the center on each, and bring the line around on the other side. Take two pieces of pine, straight along the top edge, and tack them along on the under side of the shaft line. Let these pieces project about 14" abaft the stern post. Now make the block for the guide to fit between the two strips near the after ends. The strips, of course, have a tendency to run together, due to the taper of the deadwood, and the block must be tapered to match. The bevel square is very handy for this kind of work. A hole the size of the auger is bored in the guide block. Unless you are extremely skillful at boring straight holes, bore this hole while the block is rough and shape it up to suit the hole afterwards. A very small variation in this hole will throw out the shaft line considerably when it comes out on the inside of the keel. Before this rig is set up start the shaft hole in the stern post with an ordinary bit. This starting need only be ¼" to ⅜" deep. This is necessary, as the proper ship auger is one without the gimlet point usually found on bits. It will not start its own hole, but, once started, will bore much truer than the other kind. When the auger has bored in 6" or so you can throw away the guide, as it will follow the way you have started it, anyway, the hole itself forming the guide. Referring to Fig. No. 7 you will see how this arrangement looks. If no sleeve is to be used in the shaft log, let the auger be ¼" greater in diameter than the shaft. If a sleeve is to be inserted, allowance must be made so that there will still be ¼" clearance. A sleeve is used to insure a tight joint, and is usually made of lead or soft copper put through the hole and flanged over and tacked down at each end. If a sleeve is not fitted, be sure to stop-water above and below the shaft line where it crosses the seams of the stern post and keel, and caulk between the stop-waters. To put in a stop-water, take a half-inch bit, set the worm in the seam and bore a hole half in one side and half in the other. Then make a plug of soft pine and sandpaper it down to a tight fit and drive it in. Do not paint the plug. When it becomes wet it swells and prevents the water from following the seam.

A stop-water is always put in where a seam crosses the rabbet line. The only one necessary in this boat, aside from those occasioned by the shaft hole, is where the stem joins the false keel.

Frames

We are now ready to bend the frames, or ribs, of the ship. This always seemed to me to be less of a job than it is made out.

Fig. 8 shows the steam box. Get an old kitchen boiler and place it on a setting of brick. Under the setting a hole should be



SET-UP PLAN AND METHOD OF TAKING SPILING

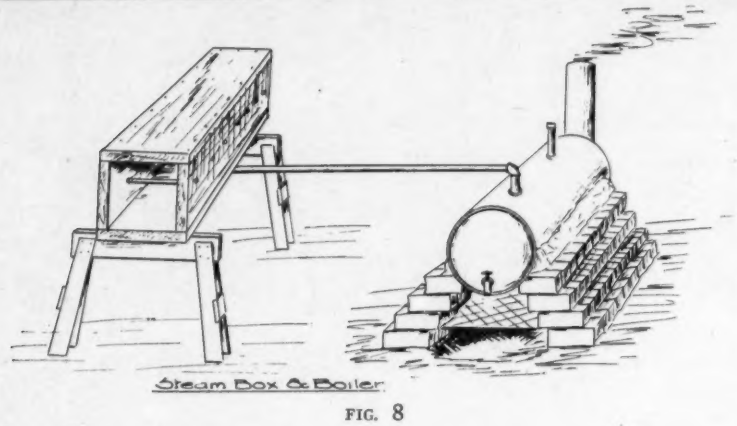


FIG. 8

scooped out and covered with some sort of grating. Around a second hand yard you can probably pick up a grating that has served as part of an office enclosure, which will do admirably as a grate. The steam box can be made large enough to take the coaming, etc., or it can be made to suit the frames and enlarged later. For the latter it should be made of four pieces of spruce scaffold boards 2″ x 12″, 10′ long (second hand), and there should be a line of dowels lengthwise along the center, making an open shelf on which the ribs will rest and get a good circulation of steam. If made large it may be fitted with a portable partition to use when bending the frames. Do not attempt to get dry steam into the box, but set it about six feet from the boiler, so that there will be some condensation in the pipe. Also keep the boiler well filled, allowing the steam to bring up plenty of hot water with it, as this penetrates the oak and limbers it up. The steaming process should last about thirty minutes when everything is working correctly. While in operation the end of the box may be plugged with old rags or with a block of wood with cloth tacked around the edge.

Fig. 9 illustrates the drum or cradle on which the frames are to be bent. Shape the sides to conform to the midship section, allowing about 4″ more tumble home at the top. The drum can be hipped out from time to time to get the various shapes. Get about six straps of No. 18 or No. 20 gauge iron, 8 feet long, with a hook of ¼″ iron riveted on the end. These should be clamped on the frames as soon as they come out of the box, and kept tight over the outer edge while bending to prevent the wood slivering in case the grain is not straight. Clamp the frame on the drum and leave until quite cool; then remove and fasten against the wall with one end on the floor and the other end under a cleat on the wall. This will prevent the frame from straightening out to any extent, and you can go ahead and fill the whole wall full. You will probably break a good many frames in bending; also find some which do not fit, but with a boat of this type, where there are no reverse curves, if the frame does not fit in one place it can usually be shifted a little forward or aft to where it will fit. When cold and dry you can usually straighten out a frame quite easily, but you cannot bend it to a sharper curve.

Notch the keel out a little to take the frames, and fasten them down with 3″ boat spikes, having first bored a hole for the spike a little less than its own diameter. Put plenty of thick white lead in the joint. The frames along the centerboard trunk should really be dovetailed in, but this will entail a good deal of work, and I think the job will go first rate without it.

As you fit in the frames, cut the bevels to conform to the ribbands. This is best done with a spokeshave, and you will do well to cut the inside and outside bevels at once, as it will save trouble when fitting in the clamps and stringers later on. The bill of material calls for finished size of frames 1⅛″ x 1½″, and to make this come out you will have to get the forward frames out of 1⅛″ x 1¾″ and 2″, on account of the bevel.

Plumb the frames up and screw the ribbands to them. If the moulds are plumb and carefully spaced you should have no trouble lining up the frames. In setting the heel of the frame, see that there is a little space between frame and garboard. This is called a limber, and, theoretically, allows the bilge water to run down to the deepest point, where it can be reached by the pump. In case the space does not come naturally, cut a little notch out of the frame, as shown in the sections. In wooden ships it is customary to pass a small chain through the limbers, and by pulling this from time to time they are kept open. Limbers on a small boat are a nuisance, as they continually choke up. It's better to cement the bilge level with the top of the frames.

Let the frame heads run up above the top ribband, and do not cut them off until you have set the deck beams.

PLANKING

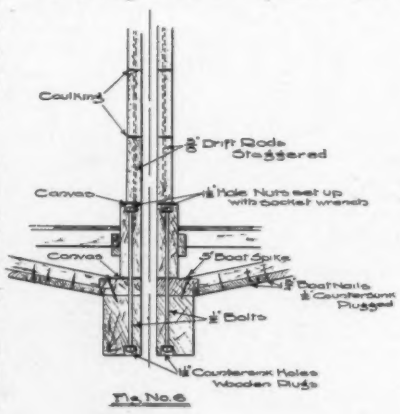
The mere putting on of planks is about the easiest thing about building a boat, but care is necessary to make the job right, as it will always show more or less, in spite of all the paint you can put on. Nothing reveals the work of an amateur, or even a mediocre professional, more quickly than his planking.

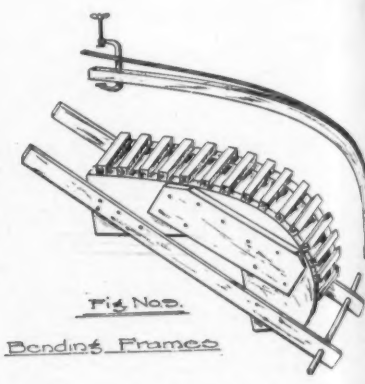
The first thing to be considered is how many planks to use to the side. Take 15, for instance, and lay them off on the midship mould, making them of nearly uniform width on the top sides, narrower at the turn of the bilge, and gradually widening toward the keel, where the garboard may be 8″ wide. No plank should be narrower than 3½″ at the midship station. Now take the same number of spaces and lay them off on the stem and transom, letting the taper run pretty near in proportion to the girth. In other words, if the girth amidships, from the under side of the deck line to the rabbet is 7 feet, and the corresponding distance on the transom is 5 feet, and we have decided to make the sheer streak 5″ wide amidships, then 5′ : 7′ : : x : 5″, or x equals about 3⅜″, the width of the plank at the transom. Work out these proportions and then sweep in the line with a batten, marking each mould accordingly.

Now get out the sheerstreak. Make the top edge straight with a chalk line, and step off at the mould intervals the widths just marked; sweep a line through the points and saw out two planks just alike, planing the edges true. Remove the top ribband and spring the plank in place, bringing the top edge up to the underside of the deck, or 1¼″ below "Top of Plank sheer" shown in plans. Springing the plank in this manner insures a truer sheer line. It may now be fastened with one permanent fastening in the frame head and a few temporary nails along the lower edge. (See Fig. 10, Fastening No. 1.) When clamping the planks in place, always see that there is a block of wood between clamp and plank, as otherwise the clamp will leave a dent that may not be planed out. Always make the planks in pairs as far as possible. Later on you will find they have to be "spiled" separately, as there is always some slight difference in the sides of the boat. Make the seams so that the planks touch on the inner face and are open from 1/16″ to ⅛″ on the outer face, to allow for caulking.

I believe in painting the faces of the frames as the planks go on. Some boat-builders disagree with me in this, but you will run against a good many different opinions in boat-building.

Now get out the plank next under the sheerstreak in exactly





the same manner, and fasten into place with two boat nails in each frame. These two strakes are specified yellow pine, and will be in one length each side.

FLOORS

After you have two planks fast on either side, stop planking long enough to put in the floor timbers and cockpit floor beams. I do not think this needs any description, as the advantage of putting them in now must be obvious. They can simply be laid across, marked, sawed and fastened in place. If this job were to wait until the planking was on you would have some little fitting to do. Rivet the floors securely to the frames with 3/16" galvanized rivets, and fasten to the keel with long lag screws or boat spikes.

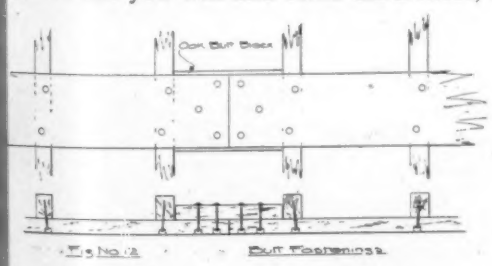
We may now give our attention to the garboards. These are specified of white oak—not that I prefer oak to yellow pine for lasting qualities, but because I think you will have less trouble bending the sharp twist at the forward end, and also because oak is less liable to split in fastening the ends. This should also be a full length piece, and careful spiling (as described later) should be taken for it. The best results are obtained by cutting a thin white pine template for the forward end of each garboard, rather than by trying to fit in the streak itself.

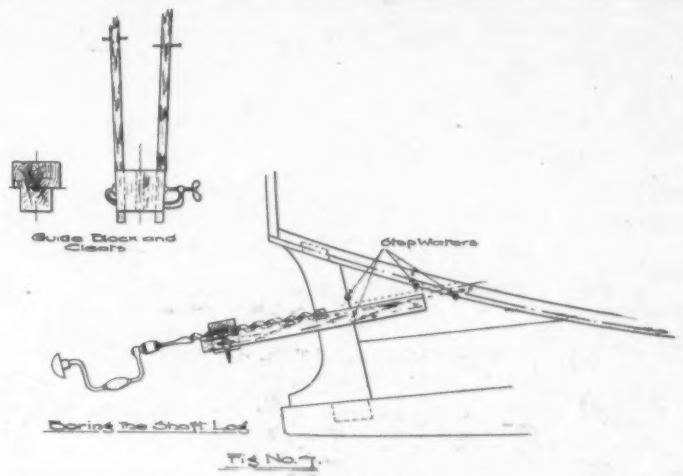
We have now reached the point where it will not be advisable to spring in any more planks, so, with the two top streaks and the garboards in place, go ahead with the cedar planking. These will have to be in two pieces to the streak, and you will have to take spiling for each piece. Fig. 11 gives an idea of how this is done. Take a straight piece of ⅜" white pine about 15 feet long. This is called a plank mould or spiling batten, and is clamped along the last plank so that it touches at the middle, and the space at each end is about equal. Set your pencil compass from the greatest space found, and with the same radius mark the board at as many intervals as you think necessary; be sure to locate the moulds so that the plank may go on in the right place. Mark the stem rabbet, and set the angle from the last plank on the bevel square.

Fig. 11 shows how the measurements are transferred to the boat boards, using the same radius on the compass. A line swept through these points gives one side of the plank. At the various moulds set off the widths of this particular plank and you have the other edge, which can now be ripped and dressed.

Distribute the butts so that one will come forward, the next aft, and the next amidships, so that at any point there will be at least two planks between butts, and even then try not to have them in the same frame space. An enlarged detail of a butt is shown in Fig. 12, and probably needs no explanation. In this connection let me call attention to the fastenings. You will note from Fig. 12 that the nail holes are staggered; this is so that they will not be in the same grain in the frame and tend to split it. Note further that the nails are not driven straight with the holes, but slanted in a trifle toward the center of the frame. In boring for the nails, first bore the counterbored holes ½" in diameter and about ⅜" deep; then bore for the nail with a bit about the size of the thin end of the nail. The nails are all set in while a weight is held against the inner face of the frame, and when the job is completed the ½" holes are all plugged with boat plugs set in thick white lead.

After two or three streaks of cedar planks are in place check over the plank widths originally laid out on the moulds and stem. Ten to one you will find some differences, no matter how careful


Oak Butt Block
Note All Nail Holes are staggered, also nails are driven Toward centre, so that the same grain is not opened up in the frame.
Fig No 12
Butt Fastenings



you have been. You may have to revise these markings two or three times before you are through, in order that the total error may not be in the last plank.

Boat-builders have a knack of getting planks to fit the first or second try, but with the amateur it will have to be a case of fit and refit until the seam looks right. While you are about this, just fool yourself into thinking that the boat is to be varnished and every seam will show as far as you can see the boat. With this in mind you will fall about enough shy to make a creditable job with paint and putty.

A very useful tool in planking is the chain clamp, a clamp divided in two with an adjustable chain between, one end clamping over something already secure, and the other making up on the new plank, the chain allowing for the bend of the hull. If it is not considered advisable to buy a chain clamp, you can use hardwood blocks clamped to the frames at several points with wedges driven between the blocks and the edge of the plank.

STRINGERS

Before the planking is closed up, the two stringers should be put in place and riveted to the frames. The moulds will have to be cut away somewhat; but this does not matter, as they have nearly fulfilled their usefulness. Get the position of the stringers from the construction sections. When clamping them down they should not be forced much, but allowed to lay square to the frames. The upper one, or bilge stringer, is intended to follow the hard turn of the bilge all along.

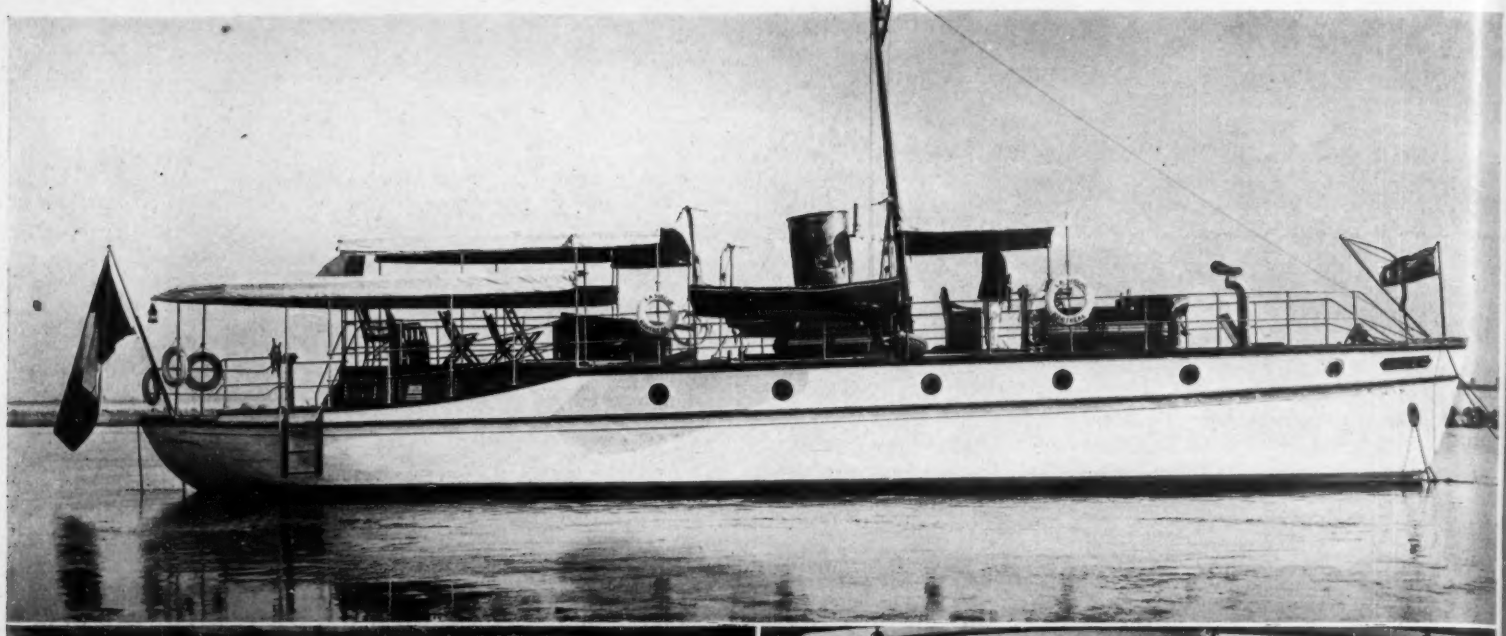
The last plank to go on is called the shutter, and should be a little below the turn of the bilge amidships. I would advise making a template for this. Tack a light piece of board over the opening and mark with a pencil from the inside. Make the shutter plenty large, as it is easier to trim down than to add on, and a large seam here cannot be remedied. If the plank is well fitted, the friction should hold it as you tap it in place.

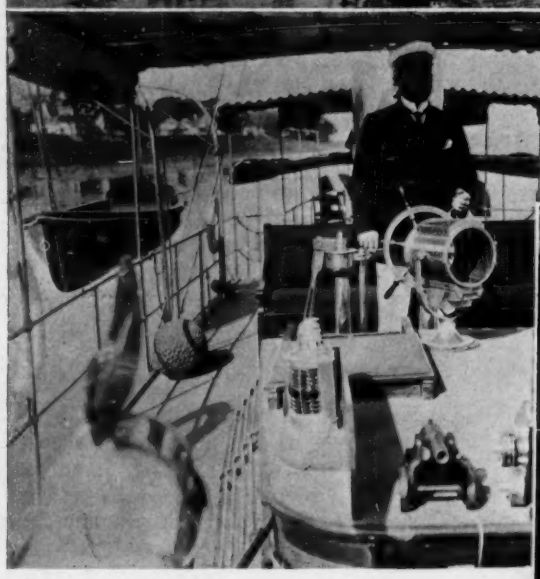
The planking being on, plane it down roughly and set in the plugs in the counterbored holes. Now look over the knots and sound them. If there are any which look loose, bore them out and plug the hole with a slightly tapered plug dipped in white lead, or a mixture of white lead and old varnish.

Do not smooth the hull up finally until after it is caulked, which should be postponed until toward the end of the job, when the hammering is over. Right here I suggest that you secure the services of a professional caulker. He should not charge you more than $10 or $15 for the job, including painting over the caulking with a seam brush and white lead, the owner furnishing the cotton. There is quite a knack to this work, and if improperly done it will cause no end of trouble.

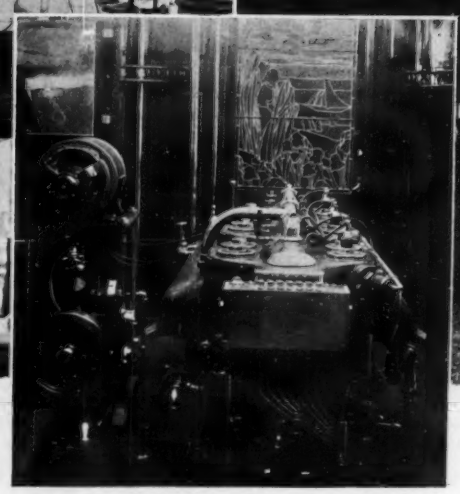
In the February issue the author will describe the method of fitting the deck framing, deck, joinerwork, centerboard and rudder. Also painting, rigging, setting the engine, etc., with detailed list of hardware and rigging fittings.

La Sirene—A Canadian 72-Footer

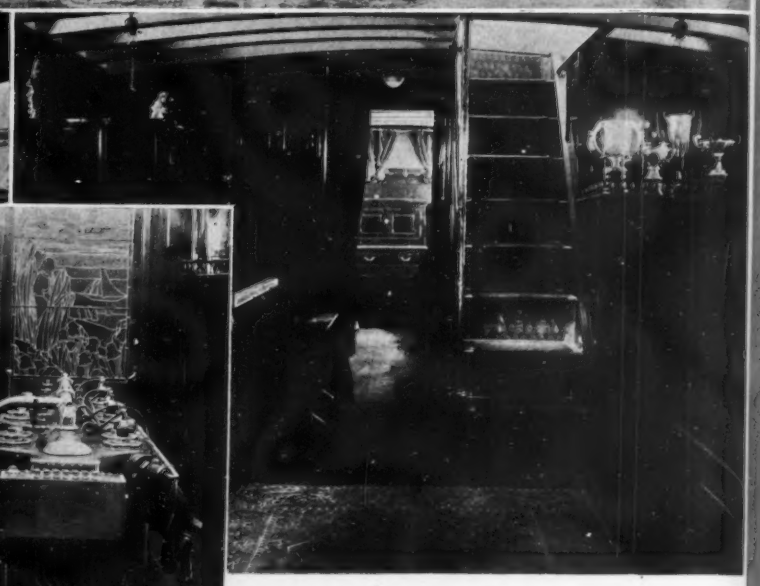




BRIDGE DECK AND FORWARD HOUSE



THE ENGINE ROOM, WITH ITS SIX-CYLINDER STERLING, IS AS COMPLETE, COMFORTABLE, HANDSOME AS THE REST OF THE BOAT

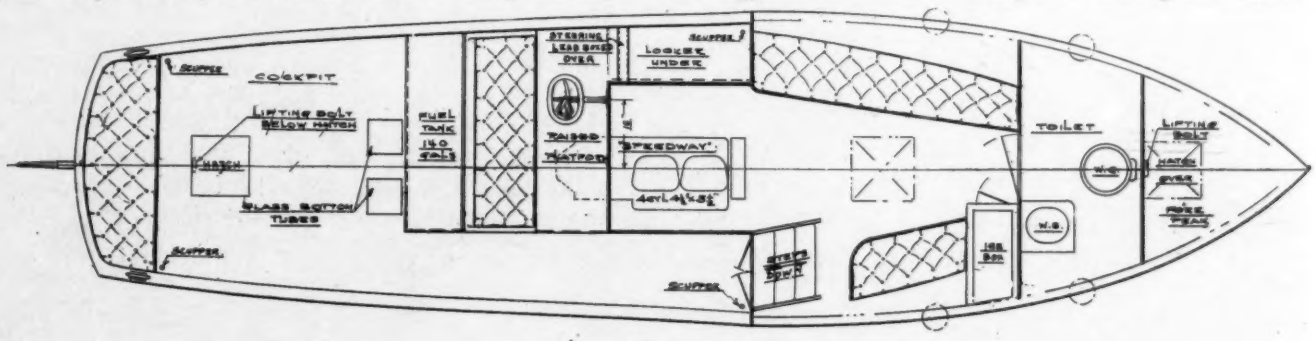


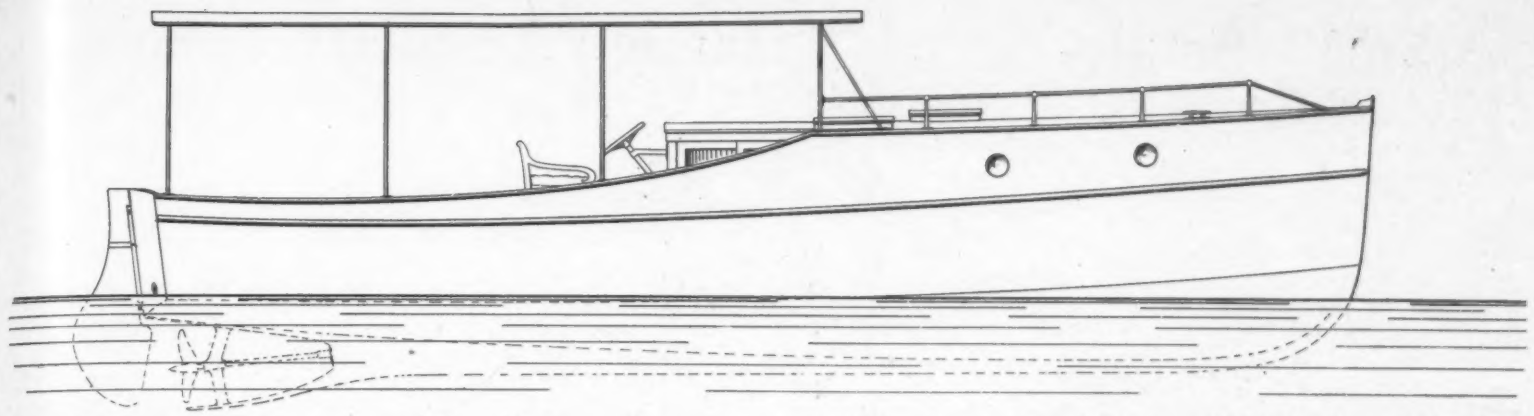
SALOON, LOOKING AFT INTO STATEROOM

La Sirene is a Canadian power boat owned by J. Versailles, of Montreal. She is 72 feet in length, 14-feet beam, and is considered one of the finest and best-equipped motor boats in Eastern Canad She is driven by a six-cylinder Sterli engine, which gives her a speed of 13 miles an hour.

Three 30-Foot V-Bottom Lap Strake Power Boat

THREE little boats that will be sure to attract attention wherever they are seen have recently ben turned out by the Gas Engine & Power Company and Chas. L. Seabury & Co., Consolidated, for use in Florida. In design these little boats follow the popular V-bottom model, and were intended for fishing and day cruising in Florida waters. They are lap-strake construction, something of a novelty in the V-bottom typ the laps extending along the bottom as well as on the topside They are 30 feet long over all; 7 feet 6 inches beam; 2 feet inches draft, and are powered with a four-cylinder, 4½" x 5½ 40-horsepower Speedway motor. On their trial trips the boa made 13½ miles an hour. They have a snug little cabin forwar



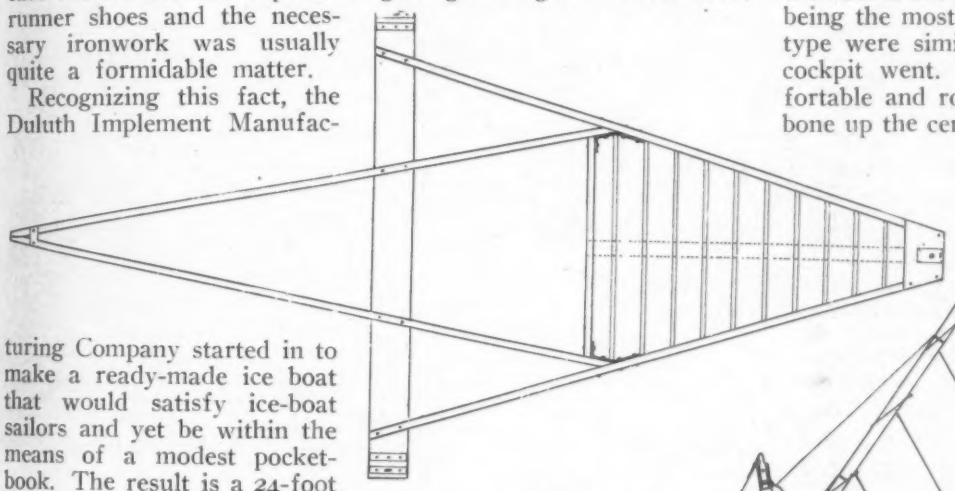


with toilet conveniences, a large cockpit, with the engine under the extension cabin trunk.

The three boats already turned out were for Mr. Carl G. Fisher, Mr. M. G. McCutcheon and Mr. James Deering. The boats have already been shipped to Florida, where they will be used this winter, and will probably be seen in the forthcoming Miami Regatta. They are particularly able looking, yet are at the same time well-proportioned craft.

A 24-Foot Ice Boat with 210 Square Feet of Sail

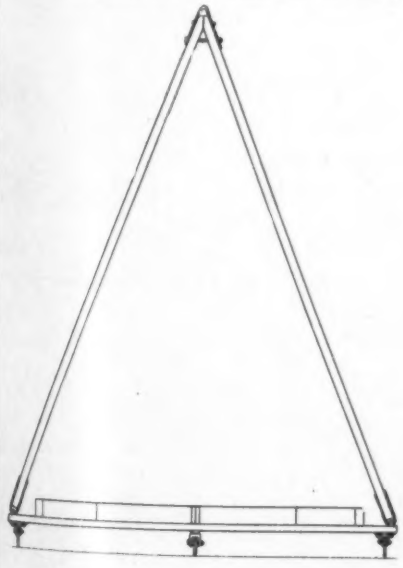
SOMETHING of an innovation in the ice-boat field is a new boat recently built at Duluth, Minn., as a stock proposition. This boat should prove a boon to ice-boat sailors, as heretofore it has usually been necessary either to build a boat to order at considerable expense, or else build a boat at home, in which case the trouble and expense of getting the right kind of wood, runner shoes and the necessary ironwork was usually quite a formidable matter.

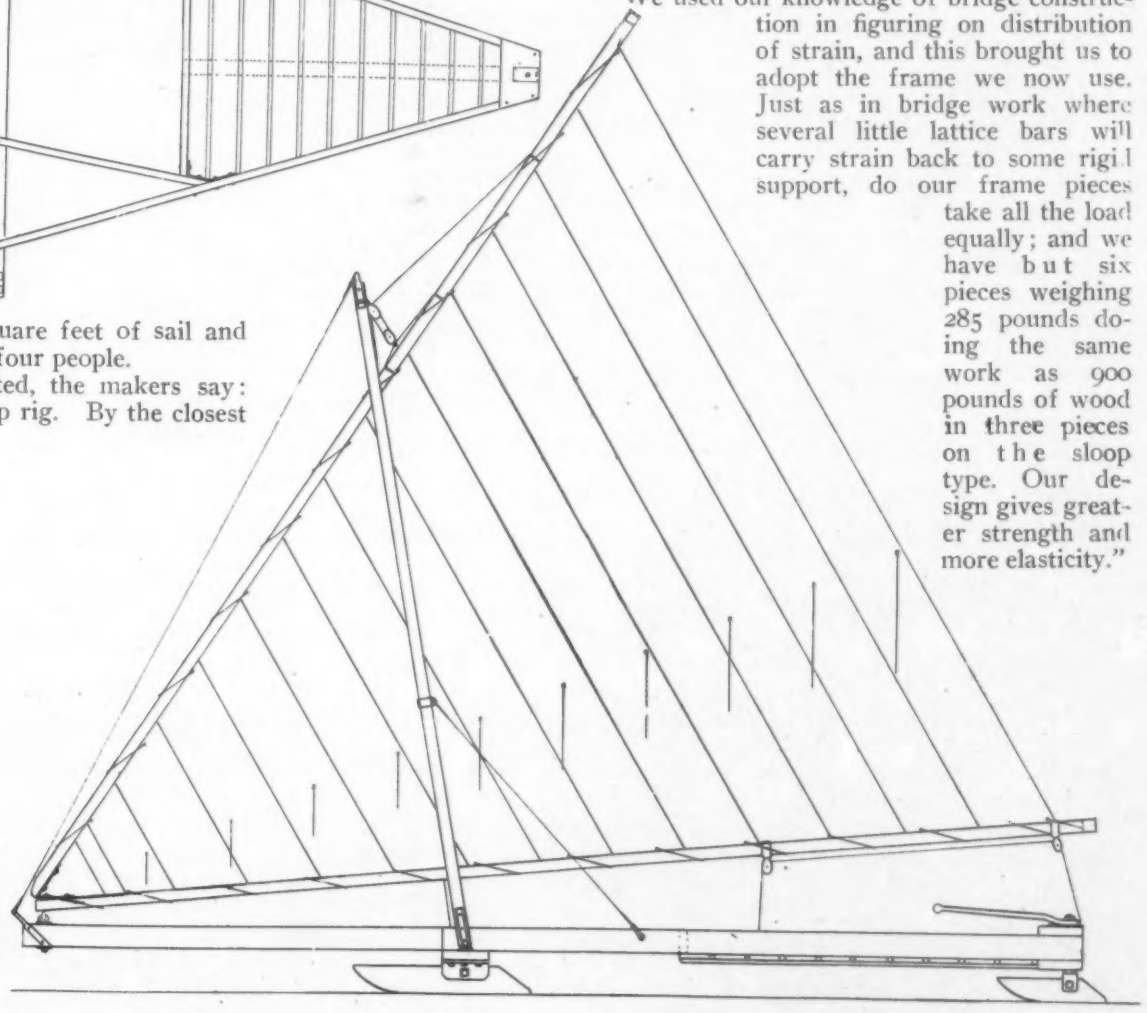


Recognizing this fact, the Duluth Implement Manufacturing Company started in to make a ready-made ice boat that would satisfy ice-boat sailors and yet be within the means of a modest pocketbook. The result is a 24-foot lateen-rigged ice boat, with 210 square feet of sail and with a cockpit large enough to hold four people.

In deciding on the model adopted, the makers say: "At the start we eliminated the sloop rig. By the closest figuring, a 450-foot sloop rig would require 900 pounds of wood for the runner plank, bridge and backbone. Double this and you will have the weight of a boat able to carry only two people comfortably. When the greatest strain (the heel of the mast) is at the weakest point this point must be made so heavy that the rest of the boat is out of proportion. So we select the 'wishbone' type as being the most logical. All the existing boats we found of this type were similar to the sloop type in so far as backbone and cockpit went. Consequently they were heavier and less comfortable and roomy than was possible. Running a heavy backbone up the center of a boat is a mistake, to our mind, as it adds weight and spoils the cockpit.

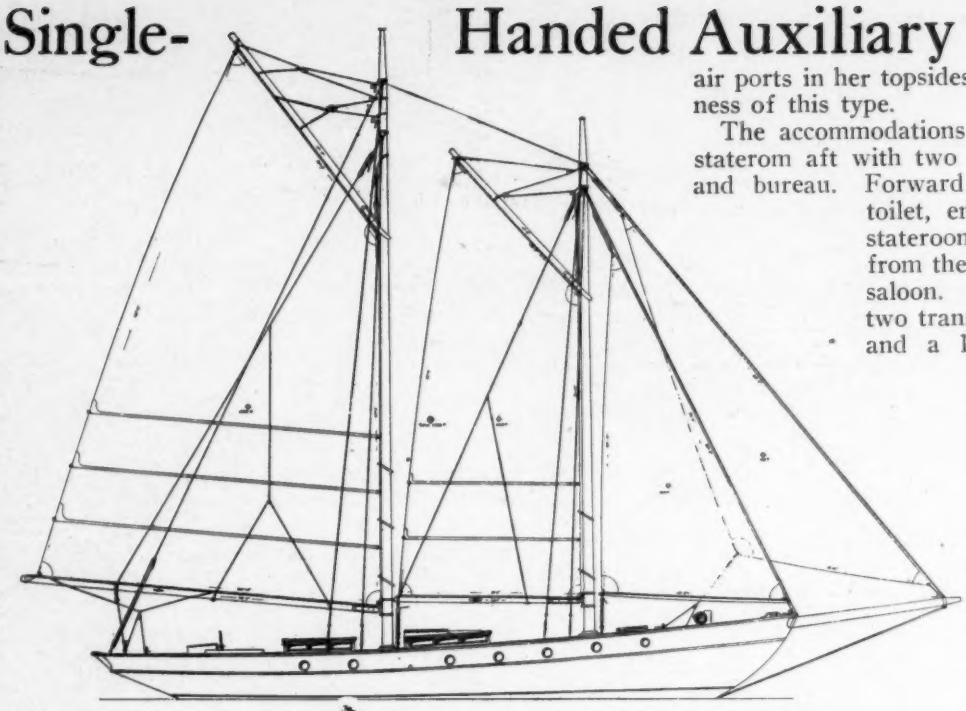
"We used our knowledge of bridge construction in figuring on distribution of strain, and this brought us to adopt the frame we now use. Just as in bridge work where several little lattice bars will carry strain back to some rigid support, do our frame pieces take all the load equally; and we have but six pieces weighing 285 pounds doing the same work as 900 pounds of wood in three pieces on the sloop type. Our design gives greater strength and more elasticity."

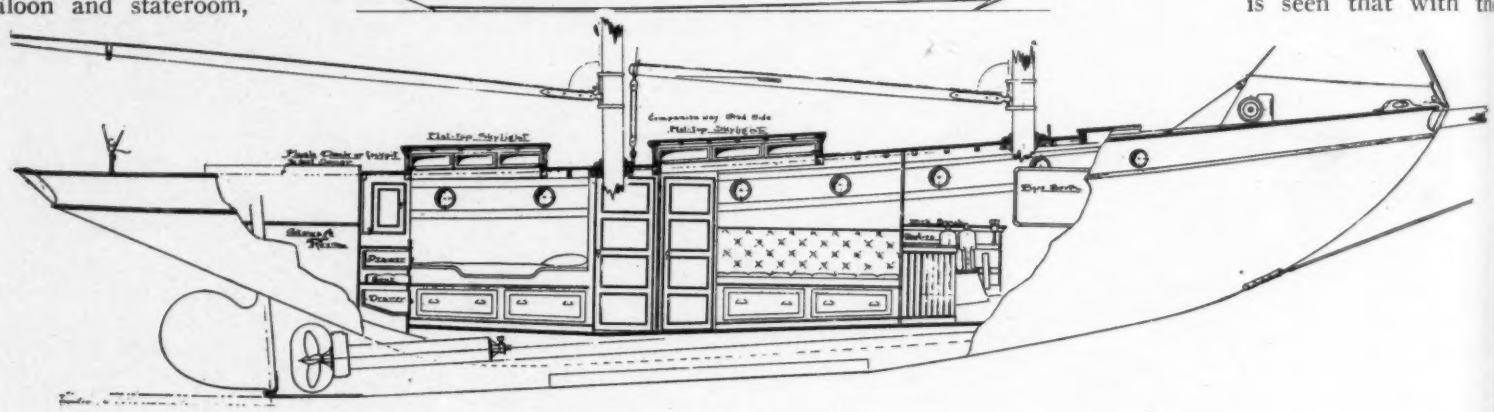


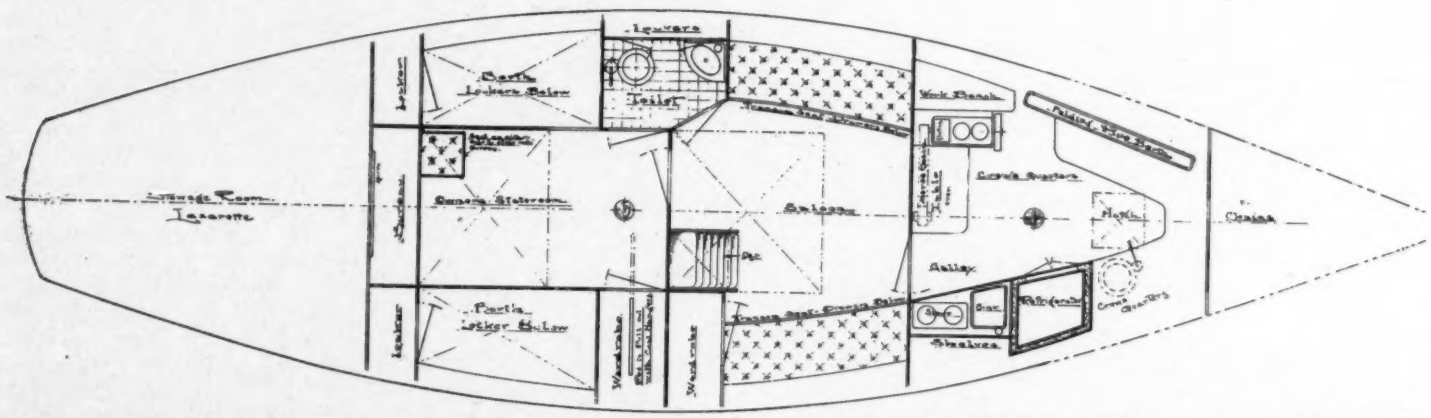


A Small, Single-Handed Auxiliary Schooner

THE accompanying plans of a unique, flush-deck auxiliary schooner for a member of the Corinthian Yacht Club, Philadelphia, from designs by J. Murray Watts, show what can be done in the way of a small, single hander. The owner's requirements were for a boat not over 35 feet water line, which would give the maximum accommodation and the best possible seagoing ability for a boat of its length. The fact that this boat is flush decked, with only a couple of flat-top skylights over the saloon and stateroom,







is an innovation in a boat as small as this. Yet there is 5′ 9″ headroom under the deck beams and nearly 7′ under the skylights. She resembles somewhat a raised-deck power boat, with outside air ports in her topsides, and she has the roominess of this type.

The accommodations consist of a very large staterom aft with two double berths, wardrobe and bureau. Forward of the stateroom is a toilet, entered directly from the stateroom, while a door leads from the stateroom into the main saloon. This saloon is fitted with two transom berths on either side and a large wardrobe to starboard. Companion steps lead up to the deck from this saloon. Forward of the saloon is a well-appointed galley and forecastle.

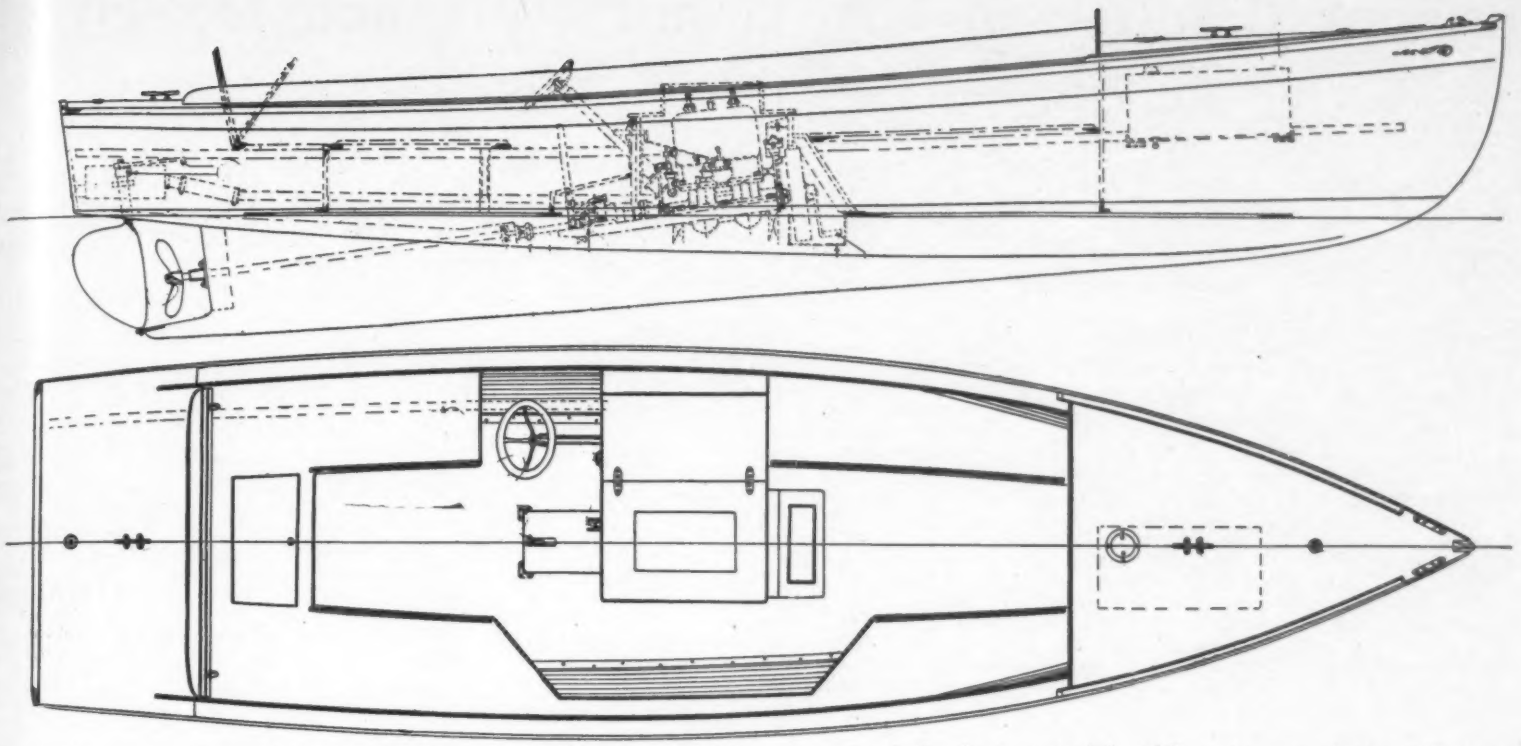
An original feature of this design is the layout of the engine and shafting. As the engine had to be forward of the saloon, it is seen that with the shoal draft it would be impossible to keep the line of the shafting from projecting above the flooring, as the center line of the fly

(*Continued on page* 48)

A 19-Foot Ten-Passenger Runabout

ONE of the most attractive and roomy little runabouts that has come on the market recently is the 19-footer just turned out as a stock design by Rice Brothers Co., of East Boothbay, Maine, the plans of which are shown here. This little boat differs in a number of ways from the 20-foot model which this firm built a few years ago. The general dimensions are: Length over all, 19 feet; beam, 5 feet; freeboard bow, 2 feet 4½ inches; freeboard stern, 16 inches, and draft, 18 inches. The boats are powered with an 8-10 horsepower, 4″ x 4″, 2-cylinder, jump-spark motor, turning a bronze wheel 14½ inches in diameter. At a speed of 900 revolutions, from 10 to 12 miles a hour is claimed for the boat.

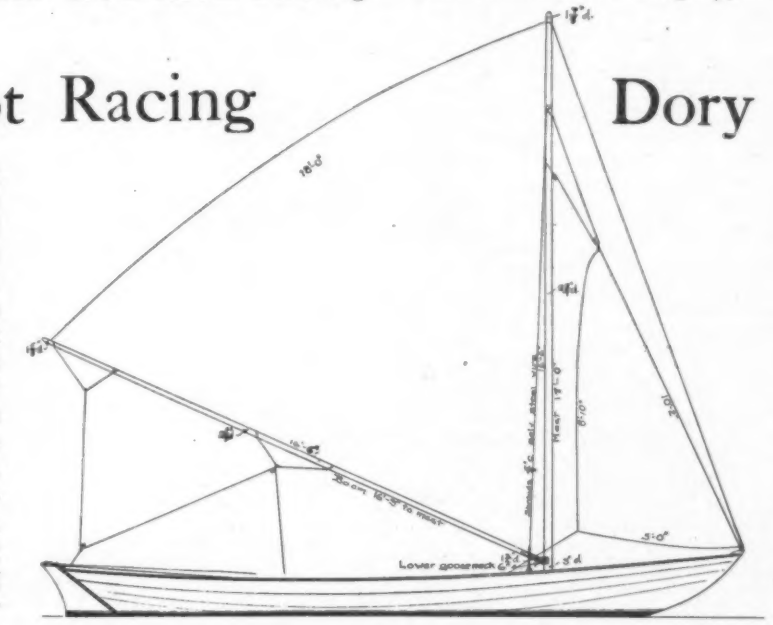
The design is particularly good, the boat having sharp, eas lines forward, with plenty of dead rise amidships, widening ou into a flat after underbody. The engine is located amidships where it should be, and is completely housed in a mahogany cas with a hinged lid, thus keeping all grease and dirt out of the boat There is a passageway on the starboard side of the motor, s that one can get from the forward to the after cockpit easil The steering gear is on the port side, abaft the motor. Th



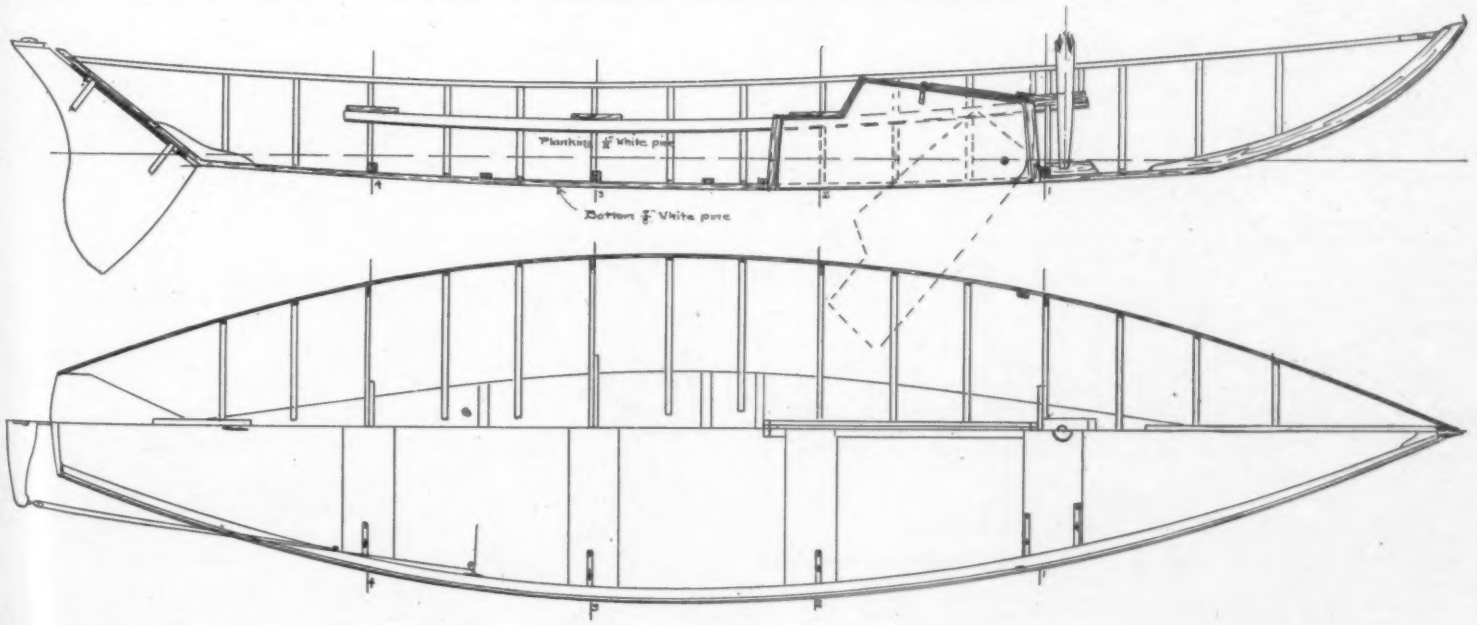
boat will carry ten people comfortably, and should prove a fast and able little craft for her power. She is built in a thorough manner of the best material. All seats, coamings, ceiling and bulkheads are of mahogany, finished bright.

A 21-Foot Racing Dory

DORY racing is becoming very popular in certain parts of the country, and at Marblehead especially there is a big fleet of these boats. A year ago a new one-design class of racing dories was started at this place, and as they proved very smart and somewhat faster than the older boats, their plans are reproduced herewith. The designs are by Samuel H. Brown, Jr., and show a particularly fast and able little boat. The sail is a leg-o'-mutton rig with a small jib, the boom being cocked well up. Their dimensions are: Length over all, 21 feet; beam, 5 feet; sail area, 140 square feet.



For a small racing boat, the dory type cannot be improved upon, as the cost is low and it has excellent speed as compared with other types of small boats. They are usually sailed without ballast, and a crew of three men will hold these 21-footers down in almost any wind, while in light airs but two men are carried. Last summer an organization to promote dory racing was formed at Marblehead called the Marblehead Racing Dory Club, and the members have taken a very keen interest in the sport.



Present Practice in the Manufacture and Design of Marine Gasolene Engines

By LAWRENCE B. CHAPMAN
Associate Member, Institute of Naval Architects

A GREAT many articles have been written on gasolene engines, but practically none of them have given any reliable data as to their performance or relative merits, nor have any of the writers attempted to analyze the marine engine and compare it in any way with other types of engines.

It is the purpose of this article to take up some of the points on which the motor boat man has been seeking information and present them in a clear and concise form. Most of the data will be shown in the form of curves, as they show conditions much more clearly than tabulated data.

The limits of a single article will not permit of very much detail or the citing of particular engines or tests, and most of the information must be presented in a general way and only average figures given. However, as the yachtsman and motor boat engineers are only interested in practical results, it is believed that this method is the best.

First of all, we must consider somewhat the theory of the gasolene engine in order to understand some of the many factors that affect its behavior and efficiency. Some of these are already fairly well understood by motor boat users, but I will take them up briefly, as they will give a clearer understanding of much that is to follow.

One of the most important factors entering into engine efficiency is range of compression. Theory teaches us that the efficiency of a gasolene engine depends directly on the range of pressures and range of temperatures during compression; that is, the engine with the highest compression, other things being equal, will show the best efficiency. Many engine builders fail to realize this, and for that reason we find engines being manufactured with wide variation in this respect. There is, of course, a limit to which compression can be carried—that is, where the heat of compression is so great that pre-ignition takes place. Compression varies in high-speed automobile engines between 70-105 pounds per square inch. Low-speed marine engines show values considerably below this. Auto engines have been built with compression as high as 130 and 135 pounds, but generally they show a tendency to pre-ignite, indicating that the pressure is too great. Compression, of course, is dependent directly upon the clearance volume; the smaller the clearance the greater will be the compression.

Theory also shows that the range of temperatures during compression affects the efficiency. That is, for the best efficiency the incoming charge should be at the lowest practical temperature and then compressed to the highest possible temperature before it is exploded. The clearance volume, which determines the compression pressure, of course, determines the temperature as well, but the temperature of the incoming charge is more or less within our control. Why the new charge should be at as low a temperature as possible can be understood readily. It will be remembered that a given weight of gas increases in volume as the temperature rises. Thus the lower the temperature of the new charge the greater weight can be gotten into the cylinder; and the greater the weight of gas present the greater the explosive force. This is one reason why the T-head arrangement is frequently used. The new charge enters on the opposite side from that on which the hot exhaust gases went out, thus avoiding the passing of the new charge through heated passages. There are many other arrangements tending to the same end on auto and aero engines that are seldom seen in the marine type. Some engine builders even advertise their engines as more efficient because the incoming mixture is heated before it is passed into the cylinder. This, of course, is a mistake. There is only one time when heating of the charge is of benefit (though at a sacrifice to efficiency), and that is in heating the air to cause better carburization, especially in cold or damp weather. It should be noted here, however, that it is only the air that is heated and not the entire mixture.

Another point as important as compression range is the scavenging, or clearing the cylinder of burnt gases before the fresh charge is admitted. It is obvious if any of the burnt gases are left in the cylinder to mix with the new charge the mixture is weakened and a poor explosion must result. This scavenging is accomplished in the four-cycle engine by the idle stroke which forces out the burnt gases. The two-cycle marine engine, firing every revolution, has to accomplish this by means of the new incoming charge. Later on it will be shown by results of tests that the two-cycle engine is somewhat handicapped by this.

The next important factors entering into efficiency are the area, lift and timing of the inlet and exhaust valves. A great many engines examined by the writer showed a wide variation in this respect, and consequently a wide variation in horsepower for the same revolutions per minute and cylinder dimensions. The exhaust and inlet valves are generally of the same diameter and have the same lift. In the best practice the valve diameter is close to half the cylinder diameter and the lift close to two-tenths of the valve diameter, with a lift of ½ inch as the maximum. Lifts greater than this are bad on account of their inertia effect and should be avoided. Valve settings vary a great deal, and, of course, depend on the piston speed adopted. Clerk gives the following values as the average of twenty-five English touring car engines, and they represent the best practice in high and medium-speed engines:

Inlet open 13 degrees late, close 21 degrees late.
Exhaust open 45 degrees early, close 6 degrees late.

It can be readily seen that variations in valve areas and time of opening and closing can have a great effect on the performance of a gasolene engine and should be given the most careful attention.

For the benefit of the reader who is not well posted on theory, it will be well to take up, briefly, an explanation of the Otto cycle on which all gasolene engines run. This can best be done by means of an indicator card, figure (1). This card or diagram represents the pressure and volume in the cylinder for all parts of the cycle. Thus, starting at *A*, the lowest point of the stroke, the piston moves to *B*, drawing in a charge of gasolene and air. At *B* the compression stroke begins and the gas is compressed to *C*, the pressure rising and volume decreasing as shown. At *C* the spark takes place, and the pressure rises, due to the explosion, the piston remaining stationary. After the pressure has reached its maximum at *D* the gas begins to expand on the working stroke, forcing the piston down. This expansion continues to *E*, where the exhaust valve opens. The pressure then drops instantly to *F*, and the piston again starts to rise, making the idle stroke *F G*, forcing out the burnt gases. The cycle is then complete after four strokes and the operation is repeated.

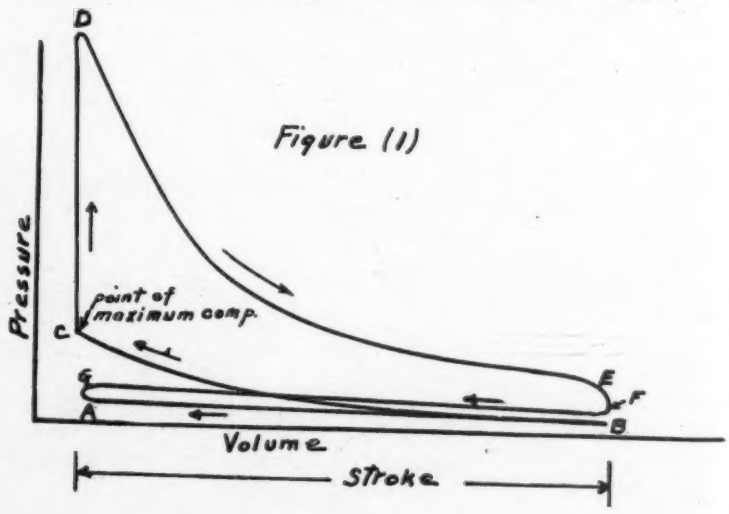
Another factor likely to have an effect on efficiency is the vaporizing of the mixture. This is not only affected by the setting of the carburetor and the proportion of air to gasolene, but also by the temperature, humidity, barometric pressure and quality of the fuel. There is no place here for a discussion of these various factors, but it is obvious that no tests are directly comparable unless these factors have been given careful attention.

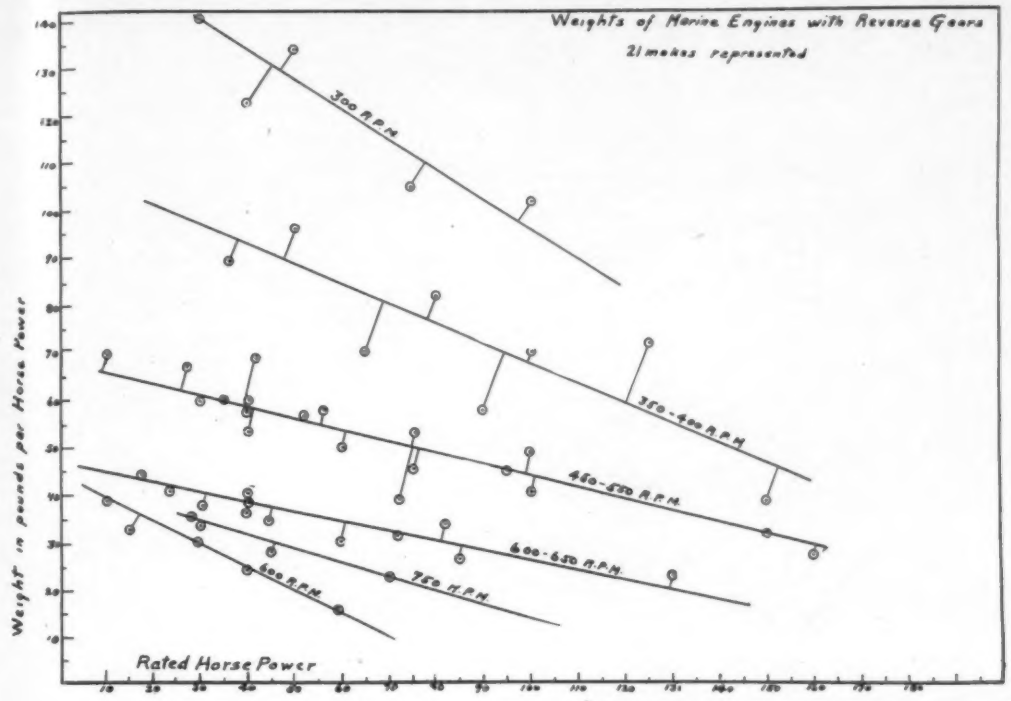
It is often claimed the ratio of stroke to bore has an effect on the efficiency, but this is not so. Ratios of stroke to bore vary anywhere between values of .75 and 2.0, and the efficiency is not in the least affected.

With this short introduction let us turn our attention to a consideration of the various marine engines on the market. Curve Sheet I shows the weights of twenty-one makes of gasolene engines. It was found that the weight per horsepower fell off with an increase in revolutions per minute and an increase in horsepower. Thus a series of curves were drawn, as shown. For instance, it was found that all engines selected having a revolution per minute between 450 and 550 fell very nearly on a straight line, the weight per horsepower varying between 65 pounds for a 10-horsepower engine and 30 pounds for a 160-horsepower engine. It was found impossible to do anything with engines below 10 horsepower, as their weights jumped around without following any law or system. The curves given on Sheet I cover the field pretty thoroughly, and show at a glance about what can be expected with all types of marine engines except the high-speed types, which are shown on Sheet II. On this sheet are plotted the weights per horsepower of high-speed and racing engines. They are, however, drawn a little differently than in Sheet I. Instead of plotting all makes of engines of the same revolutions on one curve, each make of engine has been given a curve by itself. This was found to give more satisfactory results for the high-speed engines. Thus curve No. 8 is for a make of engine with revolutions per minute varying from 1,100-1,200. A 50-horsepower engine of this make weighs 16 pounds per horsepower; a 130-horsepower 10 pounds per horsepower. Data for each curve is given on the sheet.

Curves 1, 2 and 13 are not of the extreme high-speed type, but are really intermediate between the racing engines and those given on Sheet I. Curves 4 and 6 are plotted for a large number of aero engines, and represent the average practice in that field. They form an interesting comparison with the other curves on the sheet. Curve (4), which is for the "Gnome," "Gyro," and other types of revolving cylinder engines, is, of course, the last word in lightness. This extreme lightness has only been brought about by careful workmanship and design, and probably will never be reached by the marine engine. A few of the notable racers' engine weights have been plotted on Sheet II for comparison.

Let us now turn our attention to the question of horsepower. Power is defined as the rate of doing work, and a horsepower is 33,000 foot-





Curve sheet I

pounds per minute. The general formula for engine horsepower is $\frac{P.L.A.N.}{33{,}000}$, where P is the mean pressure in the cylinder expressed in pounds per square inch, L the length of the stroke in feet, A the area of the piston in square inches, and N the number of working strokes per minute. In a two-cycle engine N is the equal to the revolutions per minute, there being an explosion every revolution, in a four-cycle engine N is one-half the revolutions per minute, there being an explosion every other revolution. From this we would expect at first thought that a two-cycle engine would develop double the horsepower of a four-cycle engine for given cylinder dimensions and revolutions per minute. This, however, is not the case, as we shall soon see.

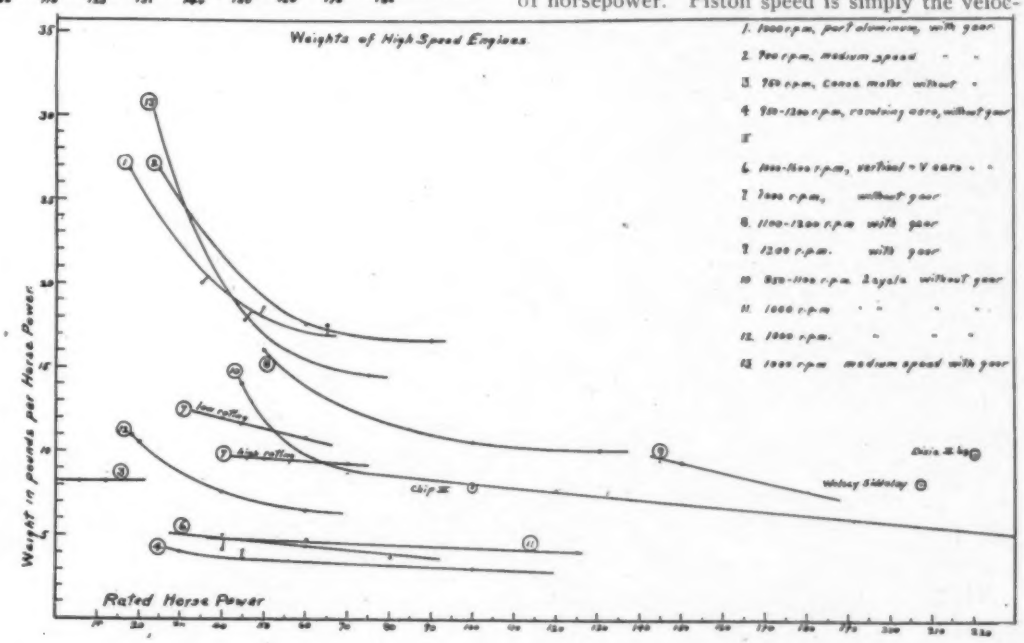
From our formula we see that if we knew the value of P, the mean pressure in the cylinder, we could find the horsepower, for all the other factors are generally given. "P" is easily found in a steam engine by use of an indicator, which draws a card (see Fig. 1) showing the pressure in the cylinder at all points of the stroke, and from this the mean P can be found. Horsepower found in this way is called indicated horsepower. Unfortunately, on account of the high revolutions per minute of gas engines, this value of P cannot be found except with very elaborate apparatus. Consequently gasolene engine horsepowers are usually expressed as brake horsepower (B. H. P.), which is found by measuring with a brake the actual shaft power delivered.

The difference between these should be clear. Indicated horsepower (I. H. P.) measures the power developed in the cylinder. Brake horsepower measures that delivered on the shaft. The latter is smaller than the former, as some of the power developed in the cylinder is used up in friction of the engine and mechanism. Brake horsepower is generally from 7/10-8/10 of the indicated horsepower. It is customary in gasolene engine work to measure brake horsepower and then figure back and find a value of P in the formula given. Values of P found in this way are recorded and form a very valuable comparison of different engines. With two engines of exactly the same bore, stroke and revolutions per minute, one might have a value of $P = 50$, another $P = 80$. Thus the second engine is showing a much better performance than the first.

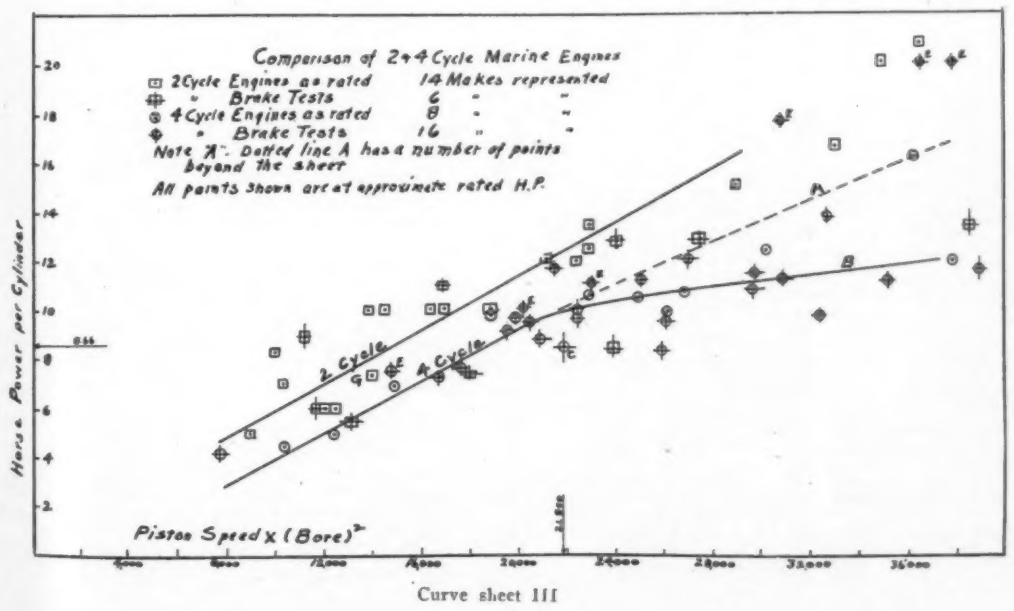
In Sheet III I have plotted brake horsepower per cylinder against piston speed times bore squared for a large number of engines, both for rated horsepowers from catalogues and for official brake tests. It will be seen from an inspection of formula that $P.\ S. \times \text{Bore}^2$ gives a true measure of horsepower. Piston speed is simply the velocity of the piston in feet per minute, and is equal to twice the stroke times the number of revolutions, the piston moving through twice the length of the stroke in one revolution. Bore squared takes care of the area. Two mean curves are drawn, one representing the average of two-cycle engines, the other the average of four-cycle engines. The various points plotted on Sheet III can be distinguished readily; the squares represent the two-cycle and the circles the four-cycle engines. A cross through either signifies a brake test. At first glance the figure presents a rather confused appearance, but on closer examination it will be seen that the lines drawn represent fair averages for the two types.

Some of the two-cycle engines show up so poorly that they are down among the four-cycle points; a few are even below the four-cycle line. In like manner a few of the four-cycle points show up better than the average, and are up among the two-cycle points.

To illustrate how these points were located, take two examples. A six-cylinder engine which I tested gave on a brake test 52 horsepower at 455 revolutions per minute. The bore was 6 inches and the stroke 8 inches, or 0.66 feet. Now the horsepower per cylinder is 52 divided by 6, or



Curve sheet II


Comparison of 2+4 Cycle Marine Engines
2 Cycle Engines as rated 14 Makes represented
" Brake Tests 6 " "
4 Cycle Engines as rated 8 " "
" Brake Tests 16 " "
Note X. Dotted line A has a number of points beyond the sheet
All points shown are at approximate rated H.P.
2 Cycle
4 Cycle
Horse Power per Cylinder
Piston Speed x (Bore)²

Curve sheet III

8.66. The piston speed is $455 \times 0.66 \times 2 = 607$ feet per minute. The $(\text{bore})^2 = 36$. From this we find that piston speed $\times$ $(\text{bore})^2 = 607 \times 36 = 21{,}800$. Now if we draw a line out from the left at 8.66 horsepower, and another up from the bottom at 21,800, the intersection of these lines will give us our point. The point is marked *"C"* on Sheet III, and as it is a brake test a cross is drawn through it. It will be noticed that this point falls considerably below the average, showing a rather poor performance for the engine.

From what has been said we would expect this engine to have a small value of P. By changing the formula for horsepower around we get

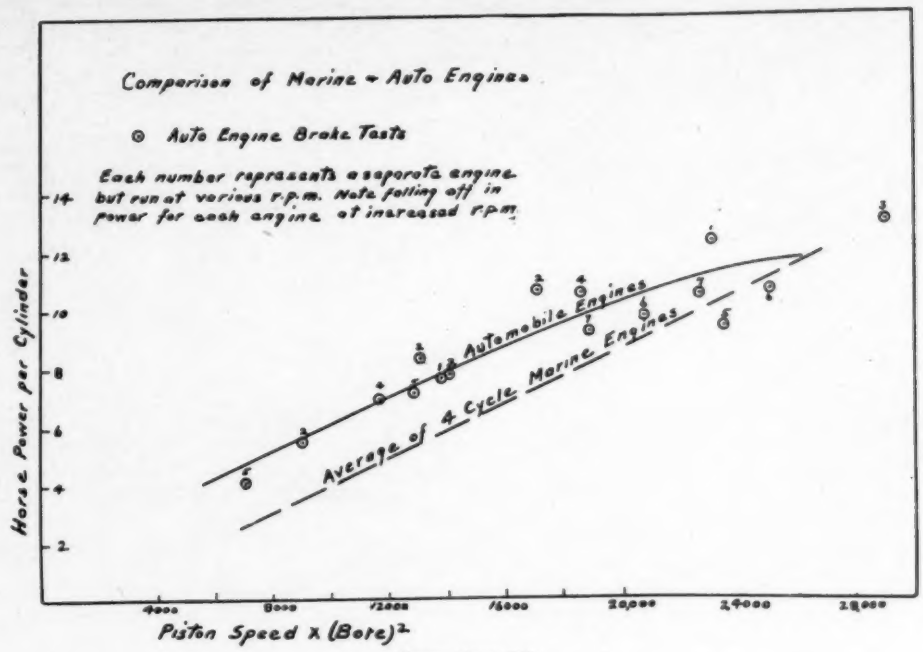
$$P = \frac{33{,}000 \times H.P.}{L\,A\,N}.$$

Solving, we get

$$P = \frac{33{,}000 \times 8.66}{0.66 \times 28.3 \times 227} = 67.5.$$

This, as we shall see shortly, is a rather low value. As a second example, a certain make of two-cycle engine is rated in the maker's catalogue as 15 horsepower at 500 revolutions per minute. This is a two-cylinder engine 5½ inches x 5½ inches. The horsepower per cylinder is 7.5. The piston speed is 459 feet per minute. The $(\text{bore})^2$ is 30.2. Piston speed $\times$ $(\text{bore})^2 = 13{,}900$. This point is plotted on the curve sheet in the same manner and marked *"G."* It falls slightly below the two-cycle line, showing probably that the engine is rated low.

Now, from what has been said, one would expect that the horsepower per cylinder for a two-cycle engine would be twice that of a four-cycle engine for the same value of piston speed $\times$ $(\text{bore})^2$, on account of the double number of working strokes. This would be true if both engines had the same values of P, the mean pressure. The curves show that this is not the case, however, the two-cycle engine being little better than the four-cycle engine for the same bore and piston speed. The reason for this is clear. It will be remembered that we have pointed out that scavenging had an important influence on gasolene engines. It was also shown that the two-cycle engine had no means of scavenging except by the new incoming charge. This is why Sheet III shows up so poorly for the two-cycle engine. The cylinder is not thoroughly cleared of burnt gases, and consequently part of them are mixed with the new charge, which is weakened, thus reducing its explosive force and cutting down the value of *"P."* The cylinder could be entirely cleared of the burned gases and the horsepower increased by using a larger charge. This, however, would cause part of the new mixture to go out the exhaust, which would mean a loss of fuel. Later it will be shown that the two-cycle engine has just as good a fuel economy as the four-cycle engine. The reason for this is that the engine builder has purposely limited the amount of the new charge



Curve sheet IV

for the sake of fuel economy, and has thus cut down the horsepower by poor scavenging. From these curves it would appear that the two-cycle engine has little place, except in engines of relatively small power, of one and two cylinders, where uniform torque and simplicity of mechanism and operation are important. The fact that it is not used in aero and auto work is evidence of this.

It will be noticed that the four-cycle curve drops off, as shown by *"B,"* after 10-horsepower per cylinder has been reached. The cause of this is simply that these engines are rated too high, and the builders are trying to get more power out of an engine of given bore and stroke than it logically should give. In other words, the engines plotted on *"B"* are forced in order to develop their rated power. Consequently the value of P falls off, as the engine cannot get enough fuel at such a high revolution per minute. This is brought about by poor designing, and in some cases could have been taken care of either by larger valve passages, higher compression or different valve timing. Again, some of the points may be the result of carburetor troubles. However, most of the brake tests recorded were either made by the builders themselves or on a competitive test where everything should have been in A-1 condition.

The curve is continued dotted (marked A) very nearly in the same straight line. Engines of good design should, therefore, fall on this line, as a few did. Point *"E"* represents a four-cycle marine engine, the brake tests of which are guaranteed by the maker. This certainly shows a very fine performance, especially in the high powers.

Sheet IV shows an interesting comparison of power between auto and marine engines. The four-cycle marine curve has been transferred from Sheet III. The points plotted are official brake tests of auto engines and show considerably better results than the marine engines. Points *"E"* of Sheet III, however, show nearly as good a performance as the auto engines.

Values of P found from brake test vary greatly. For auto engines they vary between 65 and 95; some well-designed engines give values as high as 110 pounds per square inch. Values of P in marine engines are, as a rule, considerably below those of auto engines. Values as low as 55 and 60 are common, and values higher than 80 are seldom recorded. A few high-speed racing engines of excellent design show higher values. Wolseley Siddeley and Dixie II showed values close to 90 from their brake tests. The average value, however, lies between 65 and 75. Two-cycle engines, as would be expected from Sheet III, have values of P a little better than half this, ranging between 30 and 50.

These curves on Sheet III form a very useful standard of engine performance. Catalogue ratings can be easily computed in the same man-

(*Continued on page* 48)

Reorganizing the Motor Boat Club of America

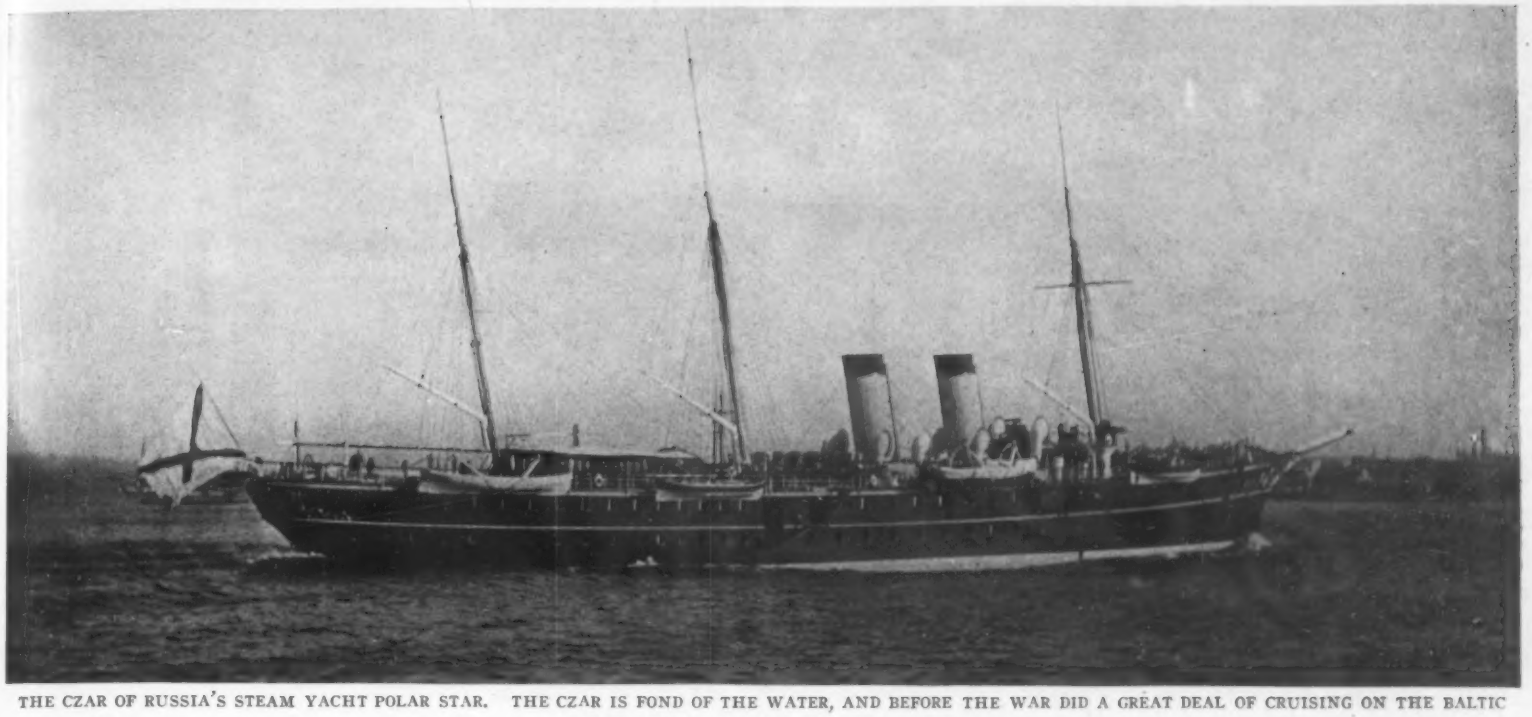
AFTER a more or less checkered existence the Motor Boat Club of America is to be reorganized on what appears to be a firm and lasting basis, and if the present plans go through the organization will take the place that it ought to occupy in motor boat racing affairs. This club, as motor boat men know, is the American representative of the British International Trophy, in that it is recognized by the deed of gift; it was the first American winner and only holder in this country of this trophy, and all the races that have been held for it in this country have been under its auspices.

The trouble with the club in the past has been that it has not had a stable enough organization to make it a factor in motor boating affairs in this country except during contests for international cups; it had no permanent home, and no fixed racing course; yet it is a club with a number of years of tradition back of it, and it seems as if there was room in this country for a motor boat club of more than local prestige.

Commodore J. Stuart Blackton has recently been elected senior flag officer of the organization, and with the help and backing of the members he is instituting certain reforms in the organization and management which he deems necessary. As Commodore Blackton is not only a successful motor boat racing man, but has also had a good deal of experience in club management, it is confidently expected that the club will soon occupy the national position which it should. Many prominent motor boat men and yachtsmen have already joined the organization, the other flag officers of which are: James Elverson, Jr., vice-commodore; William Hale Thompson, of Chicago, rear-commodore, while the Board of Directors consists of A. E. Smith, James A. Pugh, T. F. Cheseborough, George McKeeson Brown, C. M. Englis, H. S. Ford and W. H. Barnard.

The club will be operated strictly in the interest of amateur sport, and it is probable that a permanent club house will be acquired with a regular racing course. Manhasset Bay, L. I., is the most-talked of location for a permanent situation.

The club also holds the Gold Challenge Cup of the A. P. B. A., by virtue of Baby Speed Demon II, owned by Mrs. Blackton, and the race for the Cup this year will be on Manhasset Bay. This club was one of the first to foster speed boat racing, and every lover of the sport ought to be glad to see intelligent efforts being made to reorganize it along sane and permanent lines. Here's wishing the organization and the new officers the best of luck!



THE CZAR OF RUSSIA'S STEAM YACHT POLAR STAR. THE CZAR IS FOND OF THE WATER, AND BEFORE THE WAR DID A GREAT DEAL OF CRUISING ON THE BALTIC AND GULF OF FINLAND IN THIS YACHT

The Yacht Racing Association of Long Island Sound Championships

The championship winners and the standing of the various boats in the classes recognized by the Yacht Racing Association of Long Island Sound appear in the following table. There were no "P" boats racing this year, and in point of size of the boats the New York 30-footer class was the largest. A point worthy of note in view of the comments that have been made in YACHTING recently in regard to the dearth of open-class racing is that there was only one open class represented, the "R" class, in which only two boats raced consistently and qualified. Only twenty-seven boats qualified by sailing over half the races, although there were nearly 100 boats racing and eligible on the Sound. Nine races were necessary to qualify. The table follows:

RACING RECORDS, 1914, YACHT RACING ASSOCIATION OF LONG ISLAND SOUND

N. Y. 30-FOOT CLASS

Boat.	No. of Starts.	1st.	2d.	3d.	Races Called Off.	Perc'tage.
Okee	13	7	2	2	0	85.1
Oriole	16	2	3	6	1	69.1
Carlita	14	1	4	0	1	56.4
Alera	13	1	0	2	1	53.1
Caprice	15	0	2	1	1	47.0
Juanita	13	1	2	2	1	45.1
Lena	9	1	0	0	0	43.0

Winner, Okee; J. A. Mahlstedt, owner.

L. I. SCHOONERS CLASS

Moira	12	10	1	0	0	93.7
Alicia	9	1	7	0	1	56.2

Winner, Moira; J. W. and E. P. Alker.

CLASS "R"

Margaret	14	8	5	0	0	75.0
Joyetta	14	6	8	0	0	75.0
Ogeemah	4	0	2	1	0	D.N.Q.

Tie.

MANHASSET BAY 20-FOOTERS CLASS

Mlle. Boss	12	5	6	1	0	75.7
Kit	12	4	6	0	0	75.0

Winner, Mlle. Boss; W. H. Lindeman, owner.

STAMFORD ONE-DESIGN CLASS

Wake	12	3	7	2	0	54.1

Only boat to qualify; A. Iselin, 2d, owner.

JEWEL "S" CLASS

Brilliant	11	4	3	2	0	67.9

Only boat to qualify; Dr. J. C. Ayer, owner.

LARCHMONT INTER-CLUB CLASS

Wild Thyme	11	5	3	2	1	90.1
Lewanna	16	5	5	2	1	75.5
Whiff	16	3	4	3	1	67.6
Bella	11	2	2	1	0	56.4
Yuron	14	0	1	1	1	61.9
Hamburg II	12	1	0	3	1	55.4
Como	11	0	1	2	1	30.6
Festina	9	0	0	1	0	28.8

Winner, Wild Thyme; A. H. Morris, owner.

STAR CLASS

Little Dipper	12	5	2	0	0	80.0
Snapper	17	5	5	2	0	70.1
Snake	10	2	1	1	0	63.7
Vega	13	1	2	3	0	50.4

The rest did not qualify. Winner, Little Dipper; Geo. A. Cory, owner.
Nine races necessary to qualify in all classes.

The Cleveland Yacht Club's Special Exposition Train

Throughout the summer inquiries have been made regarding the World's Fair at San Francisco in 1915, and the date scheduled for the sailing races, cups for which have been donated by President Wilson, the King of England, the Emperor of Germany and others.

Arrangements have been made whereby a special train for yachtsmen, their families and friends will leave Cleveland Aug. 21, 1915, for an eighteen-day trip, passing through Chicago, making stops at Denver, Colorado Springs, Pikes Peak, Royal Gorge, Glenwood Springs, Salt Lake City and Reno, stopping in San Francisco for five days, Santa Barbara, Los Angeles, San Diego, Riverside, etc., and returning by the San Pedro, Southern Pacific or Santa Fe lines.

This train will be made up of complete Pullman service, with dining car, cabaret car, observation and buffet cars attached, so that a comfortable trip is assured for all who go in this way.

Other yacht clubs along the lakes and Atlantic coast are planning to take the trip at the same time, to see the big races that are scheduled for August, and the yacht and boat clubs at San Francisco, Los Angeles and San Diego are already planning to entertain the visiting yachtsmen as their guests—and they can do it, too.

One hundred and fifty-eight dollars pays for the whole trip, including in addition to railroad and sleeper fare, all such items as admissions to expositions, auto trips in principal cities, sightseeing trips, side trips and various incidentals, so that in addition to making a trip with a trainload of congenial web-footed sailors, which is really half the fun, the best service obtainable at the lowest cost is provided.

If applications are received for 250 reservations two trains will be run, otherwise the first 125 will receive accommodations. Further information that any yachtsman thinking of making the trip to San Francisco next summer would like can be had, and reservations on this special train made, by writing the secretary of the Cleveland Y. C., F. O. Van Sickle.

Commodore Jones Again at the Helm

Although he had emphatically declined the honor, Commodore Percy C. Jones, of Toledo, Ohio, was unanimously re-elected senior flag officer of the Maumee River Yacht Club for the coming year at a meeting held on November 17. The members positively refused to consider any other name, as the success of the club under Commodore Jones' leadership has been marked, added to which his personal popularity had endeared him to all the members. The Maumee River Yacht Club has grown under his leadership into one of the largest and most active organizations on the Great Lakes. The other officers are L. A. Alexander, vice-commodore, and Charles Murray, rear-commodore.

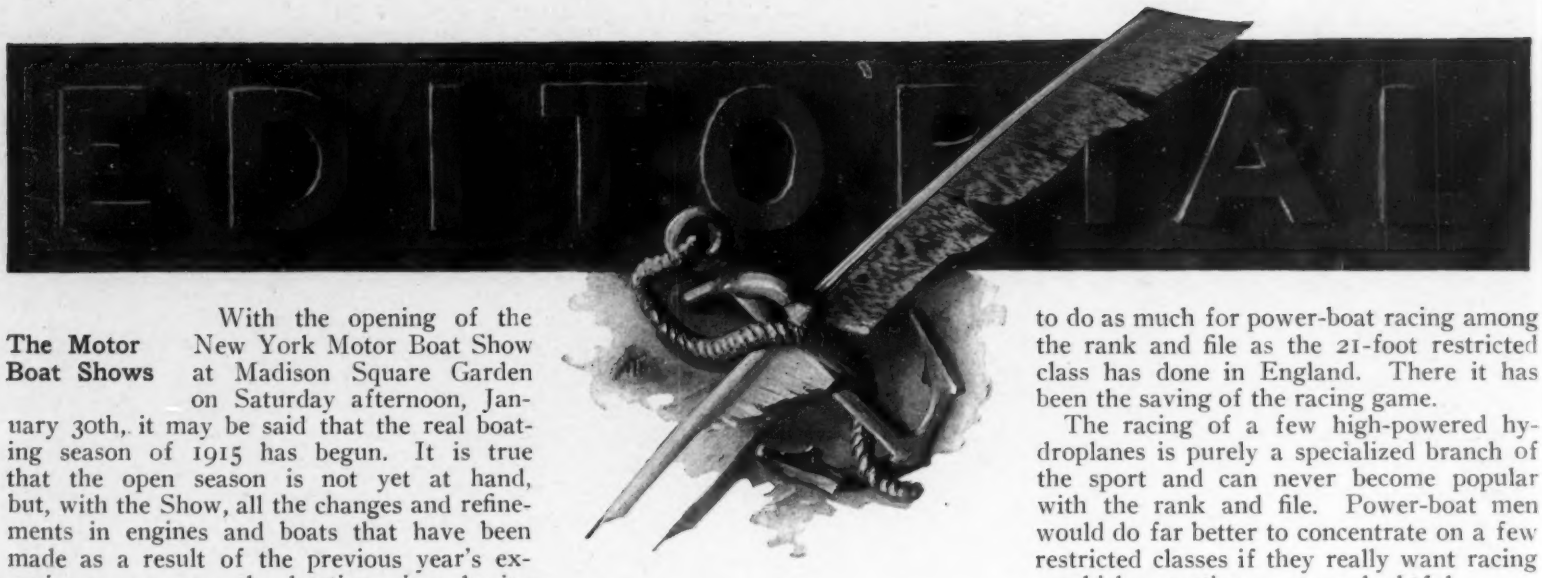
Annual Ball of the Metropolitan Yacht Club

The reception ball of the Metropolitan Yacht Club, of Pelham Bay Park, was held at McKinley Square Casino, 169th Street and Boston Post Road, on Saturday evening, November 21, and was very well attended by the East Chester Bay web-foots and their friends. It was the occasion also for the distribution of the prizes won in the 1914 regattas, and all those who finished "in the money" during the season received their trophies.

The Lincoln Park Y. C. Elects

The nominating committee of the Lincoln Park Y. C. presented the following list of names, which they submitted as the regular ticket for election at the annual meeting:

Commodore, Ogden T. McClurg; vice-commodore, F. P. Burt; rear-commodore, Irving M. Orr; secretary, E. W. Broeckl; treasurer, C. S. Macdonald; directors, T. L. Stitt, Henry R. Green, B. H. Pistorius, G. W. Baker. Mr. H. B. Pistorius to be elected for one year only to fill unexpired term of F. P. Burt. Mr. G. W. Baker is the other hold-over director.



The Motor Boat Shows

With the opening of the New York Motor Boat Show at Madison Square Garden on Saturday afternoon, January 30th, it may be said that the real boating season of 1915 has begun. It is true that the open season is not yet at hand, but, with the Show, all the changes and refinements in engines and boats that have been made as a result of the previous year's experience are seen, the boating virus begins to work in the blood at the sight of so much marine "truck," definite plans are made for the coming season, and fitting-out activity is in the air.

This year, as at the past two shows, the Garden will be used as a meeting place for yachtsmen, and boat cranks from all over the country will be rubbing elbows, making new acquaintances or renewing friendships of the past, all talking their favorite subject motor-boat—for it is a well-known fact that a "bug" can talk for an hour on his favorite subject without drawing breath, and a twenty-four hour session is none too long for a man that owns a boat or wants one.

From the amount of space that has been reserved at the Garden, there will be more exhibitors this year than ever before, the entire main floor being already engaged for engines and boats, while the gallery, as usual, will be filled with marine accessories, paints, varnishes and all the other things that are necessary for a boat.

Our Motor Boat Show Number

The February issue of YACHTING will be the special Show Number, and will be published during the week of the Show. It will contain a complete account of all of the exhibits, with descriptions of the new boats and new models of engines, and will be profusely illustrated.

This Show is held early enough this year to allow orders placed at that time to be properly filled and delivery made by the opening of the boating season. Heretofore, when the Show has been held in March, anything ordered outside of a regular stock proposition was usually delayed in delivery, owing to the short time given the manufacturers and dealers to complete the work. This is now obviated, but it should be borne in mind, however, by prospective purchasers that in order to ensure prompt delivery they must place their orders early. Go to the Show, look things over carefully, make your comparisons, and then do your buying. Don't wait until two months later, and then kick because you lose half of your season's boating by reason of not getting your boat and engine in May. Remember that even after you get your outfit it will take some little time to get it tuned up and in just the shape you want it.

Concentrate on Power-Boat Classes

Our remarks last month on the value of concentration of effort apply equally to power boat classes. It is almost impossible to find two power boats of the same size and type in any one locality that will allow racing without time allowance, and the concentration of effort on a few well-chosen restricted classes such as advocated by the A. P. B. A. would result in the building of a fleet of boats that could be raced together on a boat-for-boat basis, and that could also find competitors in different parts of the country. Good, standard restricted classes ought to be able to do as much for power-boat racing among the rank and file as the 21-foot restricted class has done in England. There it has been the saving of the racing game.

The racing of a few high-powered hydroplanes is purely a specialized branch of the sport and can never become popular with the rank and file. Power-boat men would do far better to concentrate on a few restricted classes if they really want racing —which sometimes seems doubtful.

The New York Yacht Club Report

The report of the Regatta Committee of the New York Yacht Club has just been issued, and is full of interesting data concerning the racing in that organization throughout the season. The races between the Cup Defenders naturally dominated all the other events. There were thirteen races sailed under the club's auspices between the boats built to defend the America's Cup, and of these, as has already been told, Resolute won 13 and Vanitie 2. (In the whole of the season's racing Resolute won 15 and Vanitie 5.) It is interesting, also, to note that Mr. Robert E. Tod's new schooner Katoura challenged for both the Brenton Reef and the Cape May Challenge Cups, but that both were forfeited by the Karina and the Atlantic, respectively, so that there was no contest for either of these long-distance trophies this year. Of the other important trophies, the Navy Challenge Cups were won by Irolita and Pleione in their respective classes; the Alumni Association Navy Challenge Cups were won by the schooner Venona and the sloop Spartan; the Rear Commodore's Cups went to the Enchantress in the first schooner division, and Hopewell in the second; to Carolina II in the first sloop division, and Dorello in the second; the Astor Cups went to Resolute (the Cup Defender's Cup), to Pleione in the sloop class, and to Enchantress in the schooner class.

All Ready for the Miami Regatta

The mid-winter carnival and regatta at Miami, Florida, January 15-16, promises to be one of the most interesting of the events held in Southern waters. The character of the entries assures high speeds being made by the racing classes. Commodore J. Stuart Blackton has entered his record-breaking "Babies"; W. J. Conners has entered Buffalo Enquirer, which will be driven by W. J. Conners, Jr.; Johnson Brothers' Black Demon III will be there, assuring a good fleet of 50-milers, while the other classes have been well filled.

In the cruising class three new 30-footers built by the Gas Engine & Power and Chas. L. Seabury & Co.., Cons., will probably make their appearance, while Carl G. Fisher's Shadow, a 48-foot glass cabin launch, with an estimated speed of 26 miles, will be on hand. Many of the boats that are South for the winter will also take part.

All arrangements have been made for handling the regatta and taking care of the contesting boats, while their crews are assured of the best of times ashore. It is expected that the regatta can be made an annual event, and will be to this country what the Monaco Carnival is to Europe. Classes are provided for open and displacement boats, cabin cruisers over and under 40 feet, and hydroplanes.

Mess Room Talk

IN this Department we will answer questions concerning the problems which boat owners are constantly running up against in the operation of their motors or the handling of their boats.

Auxiliary Power and Installation

NEW YORK CITY.

Could you kindly advise me concerning the most satisfactory gasolene marine engines, 4 to 8 horsepower, suitable for installation as auxiliary power in a small keel cabin sloop, 24 feet 8 inches over all, 18 feet waterline and 5 feet draft. I prefer a four-cycle, but is it advisable to install a four-cycle engine where economy of space is an important factor?

What is the maximum pitch of shaft you would recommend for satisfactory service? W. S. W.

Where economy of space is necessary, in a small engine of the power you mention a two-cycle might be advisable, as it is lighter and takes up less room, while the economy that might be effected by a four-cycle would be almost negligible in a small engine such as this. As to maximum pitch of shaft for auxiliary power in a small boat, I would say that, of course, the nearer horizontal the shaft is the greater the efficiency. Shaft angles up to 15 degrees from horizontal are not excessive in a boat of this type, and I doubt if the loss of power would be appreciable. It might even stand 20 degrees if it was a case of necessity, though there would be, of course, loss of power at this angle and excessive vibration.

V-Bottom Ketch as a Sea Boat

WASHINGTON, D. C.

In the November issue of YACHTING there are a set of plans for a 28-foot auxiliary ketch, by C. H. Dodd, of V-bottom dead-rise design with raised cabin and outboard rudder. I am very much interested in the appearance of the ketch, having built several of that same design, and would like to know your opinion as to the behavior of this type in extended cruises in open water, and the steadiness in riding out a rough gale with choppy seas, such as are met with on Lakes Michigan and Superior, where I intend to use a yacht next summer.

Can you kindly inform me where I may procure further plans and details in case I decide to build that kind of boat? J. G. W.

The V-bottom model, if properly designed, makes an excellent sea boat in a small craft, and for extended cruising and knocking about in rough waters it is particularly good. In regard to steadiness, no small boat can be *steady* in a rough sea, but boats of this type can be hove to if the sail plan is properly balanced and will drift off to leeward, taking the seas easily over one bow or the other, depending on which tack she is hove to on, and when properly balanced in this way would ride out quite a blow without any great danger. Of course, you could not show much sail in a real gale of wind in a boat of this size. Probably a riding sail aft and a sea anchor would make the best combination, but in this case you would want lots of water to leeward. I think that a boat of this type ought to make good on Lake Michigan. You can get further particulars as to this boat by writing the designer.

Propeller for a 20-Footer

NEW YORK CITY.

I have a 20-foot x 4-foot beam compromise stern open boat, which is powered with a motor having a 4-inch stroke, 3½-inch bore, which I believe is about 4 horsepower (two cycle). Kindly advise me what size propeller I should use and about what speed I can get from the outfit. H. G. O.

Replying to yours of November 5, regarding the propeller for a motor of 3½-inch bore x 4-inch stroke, rated about 4 horsepower, I would say that, though you do not advise, I presume this is a single-cylinder engine. In the absence of given revolutions I presume also that they are in the neighborhood of 700. If this is the case, I would say that you would need a three-bladed wheel about 14 inches diameter by 16 to 18 inches pitch. The greater the number of revolutions the smaller the wheel, while the slower the revolutions the larger would be the wheel. In regard to speed, if your boat is of good model and easily driven you might get 6 miles an hour with this outfit.

Captain Slocum Lost

RIVERSIDE, CAL.

Could you still tell me if Captain Joshua Slocum is still living? He must be quite an old gentleman by this time. Perhaps he is dead. I saw the Captain, also his boat Spray, at the Pan-American at Buffalo, N. Y. I was very much interested in following his voyage and would like to locate the boat. H. R.

According to the best of our knowledge Captain Slocum has been lost at sea. He sailed on the Spray from here about three years ago, bound ostensibly for the Amazon, and was never heard from since. His son comes in here frequently, and it is his belief that the Spray was run down by a vessel some night and lost, as he does not believe that the craft would ever have foundered through stress of weather. At any rate it is practically certain that the Captain has lost the number of his mess.

A Question of Overlap

REGINA, CANADA.

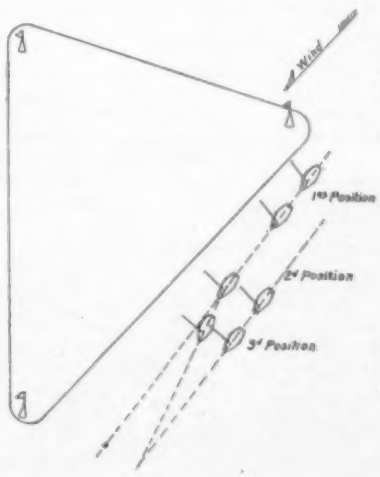
Will you be good enough to let me have a ruling on the following case, which arose during a recent race between the 14-foot dingheys and the Regina Boat Club?

Two boats, one clear ahead of the other, had turned a buoy, and with booms out to starboard were running down for the next mark (let it be understood here that the course is a somewhat small one, about one mile, being confined to the limits of an artificial lake), making for a point away from the mark itself so as to permit, after the gibe, a short reach and a quick turn around the buoy for the beat up the next leg of the triangular course. The leading boat was gradually overhauled by the other on the run until both were running parallel, with the overtaking boat being, if anything, a foot, or maybe two feet, short of a complete overlap and on the weather side.

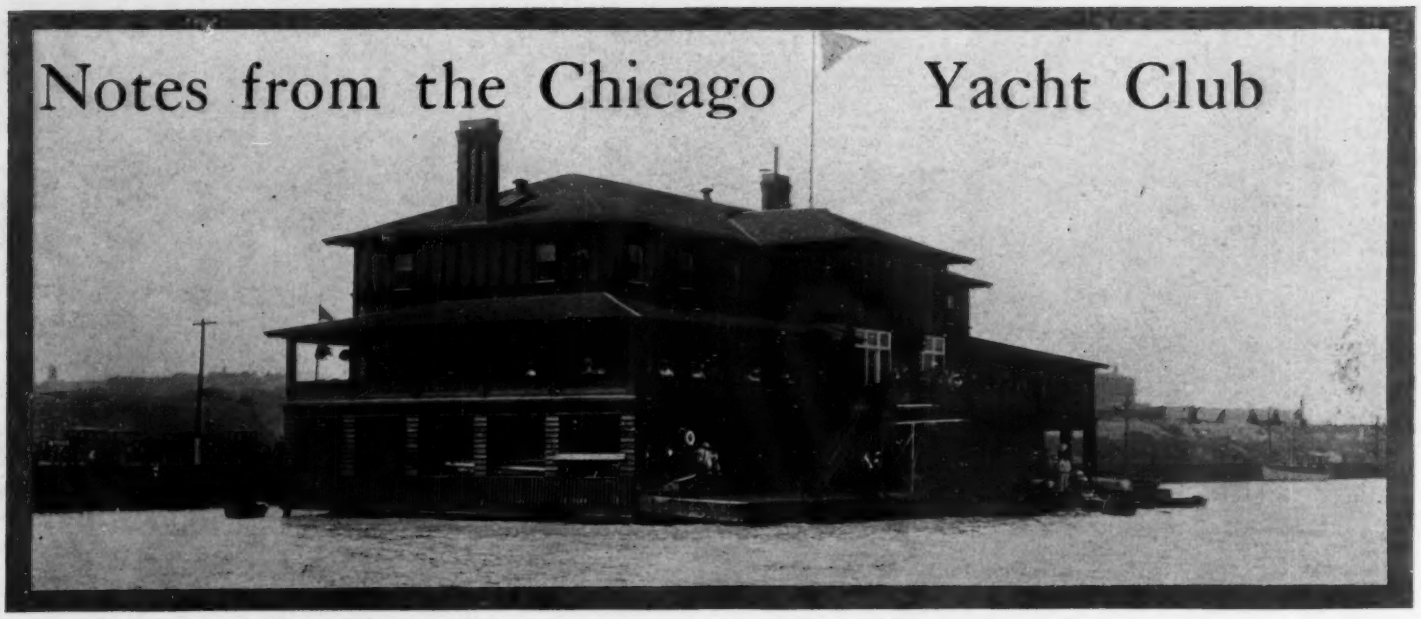
The club rules provide that an overlap is established when the overtaking boat has not a free choice on which side she will pass—a matter of inches, to be strict—and that the leeward boat must not luff during an overlap unless she has *attempted to prevent the passage of the boat on her weather before an overlap existed.* Now the question is: Given the positions, can the leeward boat (running) put her helm down, and so cause about three feet of the boom of the overtaking boat coming across the overtaken boat and eventually fouling its mast? The overtaking boat held on her original course after the overlap was established, and the course of each boat when first the overlap was established, if continued, would have brought each well to the south of the mark. C. W. W.

Concerning the case in question, we would advise you that your club rule regarding an overlap conflicts somewhat with the regular rule of the road, which provides that the overtaken boat has the right of way until the overtaking boat has drawn clear. However, in all racing rules this particular point of an overlap is covered in some way or another. Without knowing anything of your other racing rules, and judging the case only on the merits of the rule governing an overlap, which you quote, we would say that in our opinion the overtaking boat B is in the right in this case, and that the overtaken boat A had no right to alter her helm after the overlap was established, which it is claimed that she did, so as to bring the two together.

It seems that the intent of this rule of yours, that a boat must not luff after an overlap has been established unless she has luffed before to prevent the passage of another boat to windward, is that she must not change her course so as to involve risk of foul. In our opinion it is immaterial whether the luff is sharp enough to actually make the sail shake or whether it is merely putting the helm down so as to crowd the other boat. The intent of the rule seems to be clear that she must not alter her helm so as to prevent the passage of another boat to weather after the overlap exists. Most of the racing rules on the Atlantic coast cover this point by saying that the overtaken boat may luff as she pleases as long as she can hit the other forward of the shrouds.



Notes from the Chicago Yacht Club



The annual meeting brought out a large and enthusiastic attendance at the winter quarters in Federal Street, and plans for the ensuing year were eagerly discussed.

The reports of the various committees were read and accepted, and a note of thanks tendered the members who have worked so hard to make the past season a wholesome success. The regatta committee has handled the races well this year and has done much to encourage yachting in all classes. While the P and R classes and the "Mosquito Fleet" have had a busy time all summer the power boat men and the cruisers have been given their share of attention and the prizes offered have been an added incentive for them to get in the racing game.

Fred. Price tucked the Marigold Trophy safely away in his locker and also wrote the Valiant's name on the Sir Thomas Lipton Trophy. Valiant also won the first leg on the triangular race, while Ogden McClurg's Class "R" XXIX won the second leg on this race. In the bang-and-go-back for power boats, Ogden also won with his cabin cruiser XXX. This was a novelty race and the entries exceeded all events ever held at this club. That a stiff northeaster was blowing and so many boats were competing will also assure more races for the "Put-Puts" next year.

The club has a fleet of eleven "Mosquitos"—seven owned by members and four by the club. Every Saturday saw most of these "windjammers" out in the course races. The watermelon and relay stunts contributed to the edification of the porch fleet. The "Mosquito Fleet" had been through some stiff squalls, and the boats' behavior under this season's winds has proved them able to stand any sort of heavy going. Then, too, they have been so well handled that it takes an extraordinary skipper to finish in the lead. The younger sailors are encouraged to sail this class, and we are developing some husky crews to uphold the club's honor in the future.

The by-laws were amended at the annual meeting to permit the Juniors, who are crew members or active sailors, to join the club in their Junior capacity, and the age limit was extended to twenty-four years.

With the almost certain addition of two Class R yachts to next year's fleet, new interest is awakened in this class. Ogden McClurg's dainty XXIX has led the way home so often and demonstrated so thoroughly the potential chances in races with all classes for this size yacht, that several skippers are busy with plans to fly their flag on an R boat.

We will have plenty happening in the Class P racers next year. Charles Chapin's Michicago, the Heyworth syndicate's Olympian, E. M. Mills' South Shore and the Mavourneen, which Roy Barcal has sold to Paul Stewart, and Fred. Price's Valiant, will, of course, do battle again, and the possible addition of another yacht in this class will help the game along.

We understand there is some talk in the East of challenging for the Manhasset Challenge Cup this year, and from an entirely new quarter. The "P" Class has flourished remarkably in Massachusetts Bay waters and become very popular. Three new boats will be built in that locality this summer, and there is some sentiment around Marblehead of challenging for the Manhasset Trophy. The principal difficulty is in arranging dates that would not conflict with the local racing season and keep boats out of the Massachusetts Bay championships. However, the season is over shortly after Labor Day, and the Chicago Yacht Club would welcome a challenge any time between the first and the 20th of September.

The weather can usually be counted on at that time, and the conditions that prevailed at the last Manhasset Cup Series, which began September 22, if we remember rightly, were quite unusual. It is believed that several designers will get out boats for the Massachusetts yachtsmen, and Owen, Gardner and Herreshoff have all been spoken of as possible designers of new boats. With a little nursing perhaps the desired challenge could be brought about.

No, Dr. Baum hasn't sold his handsome schooner Amorita, and she will probably be seen in commission off the club house next summer. The type does strange things sometimes, and in this column, last issue, a Dr. Bann was given as being the owner. Purely a typographical error, Commodore, for which the compositor was duly called down.

The Sir Thomas Lipton Cup is an excellent trophy for either the P or R Class, and as there are no new 21-footers building, it would seem to be about time to allot this beautiful trophy to one or the other and excite a new interest in the cup. With Chicago Yacht Club's Yacht Owners' Association promoting inter-club racing, this question is one which should have serious consideration by that auxiliary, and all Chicago yacht clubs should be asked for co-operation to revive the interest in the Lipton races.

The next meeting of the Yacht Owners' Association will be held on January 15, at the Hotel La Salle, and the topics to be discussed probably will bring together the largest crowd of club members yet engaged in "Winter Racing."

Chicago's plans to beautify the Lake Front are so shaping themselves that we will soon have more miles of yacht anchorage than any other city in the world. Electrification of the I. C., now a thing of promise, will shortly become a fact, and the lagoon inside the drive from Jackson Park to Evanston—what a roseate dream for a power boat man! Charles E. Fox, chairman of the Lake Front Committee, is wideawake to the interests of yachting, and Chicago sailormen are doing their share to hurry along the realization of this greatest scheme to beautify Chicago.

The Club's Trapshooters

At the suggestion of many members of the club, standard double and single-throw traps have been installed on the club house float, and, starting Saturday, Dec. 12, a good many of our sailormen began to break up the clay pigeon with their trusty shotguns. Commodore George O. Clinch is chairman of the shooting committee, and his hard work is rewarded by the enthusiastic attendance of our members who love this fine sport. Inter-club contests are now a possibility and another diversion is added to the winter schedule of the club. When heating apparatus is installed in the club house there will be no more attractive place in Chicago during the winter months, and it is to be hoped that next year will see this improvement.

Admiral Driftwood's Duffle Bag

It is but five days until Christmas, and here in the winter quarters, the bachelor "tars" who have no place to go but out and no place to come but back, are just getting their mid-season form at Kelly pool and bridge. The pot begins to look like the First National Bank, and our bridge exponents still bid their full strength and run afoul of better hands.

One might think that a yacht club, of all places, would furnish a strong reading light—and there was no exception made to this rule in buying the *one light* we now have. It's a strong light all right, made of brass and "stayed up" to withstand anything from a hurricane to a rough-and-tumble fight. Its tiny gleam of light, however, compares favorably with that of a candle in a gale of wind—in fact, a good healthy lightning bug would be much better and would take up less space. For two years the question of a suitable reading light has been discussed. It's a grave question, and the responsibility weighs heavily on our secretary and chairman of house committee. We are merry but patient sailors, and have every confidence that our superior officers will do the right thing; but, we ask with due respect, when may we see the light?

Cape May One-Design Class Not Built Yet

In the December issue of YACHTING, describing the plans of the 16-foot one-design class for the Cape May Yacht Club members, it was stated that some of the boats had already been built. We have since found that this is not so, and while plans have been drawn, and estimates received of the cost, final action on the building of the boats has not yet been taken, but probably will be in time to get the boats ready by the spring.

New Rochelle Yacht Club News

News of the New Rochelle Yacht Club

The principal activity on Harrison Island at this season of the year is trap-shooting, and the following programme has been arranged by the shooting committee: Every Saturday at 2:30 P. M., Optional Sweepstakes, a 50-bird handicap for the Monthly Cup and 25-bird handicap for the Accumulation Cup. Sundays, at 10:30 A. M., both scratch and handicap sweepstakes, handicaps for the Monthly and Accumulation Cups, and a handicap for the Stevens and DuPont Trophies. Holidays, at 10:30 A. M., there are both optional sweepstakes and handicaps for special trophies.

In addition to the above prizes there will be a trophy for the highest scratch score made in the regular programme of 100 birds, exclusive of the distance handicaps, during the season, and a trophy is offered for the longest straight run made in the regular programme of any day's shooting. A handsome gold fob will be given the winner of the Club Championship at 100 birds scratch; this event to be shot on Sunday, March 28, 1915. There will also be a Consolation Prize and other special prizes. Team matches will be arranged with other clubs and one or more open tournaments will be held on our grounds. When our club sends a team to compete at other traps the regular programme at our own club will be called off for that day, but any of our members who desire to shoot informally at our traps on such day may do so. Medals and bars will be awarded to those members who represent us on a winning team. Handicaps will be allotted by the shooting committee and are subject to change at any time.

The cost of shooting is small, the targets and ammunition together only costing 3½ cents per shot, so that a forenoon's shooting can be had at very small expense, with always a chance of winning a sweepstake.

At this writing the Accumulation Cup already has over $30 in it, and it will be worth upwards of $75 by the time the match is completed, the first of February.

The Sun Parlor on the south porch of the winter club house is now completed, and adds a great deal to the comfort of the members during this cold weather.

The nominating committee, consisting of ex-Commodore E. C. Myrick, G. P. Granbery and William Merrill, have submitted their report to the Board of Trustees, and placed the following ticket in nomination for the year 1915:

For commodore, J. Albert Mahlstedt; vice-commodore, James L. Givan; rear-commodore, Herbert L. Stone; secretary, C. A. Marsland; treasurer, Henry M. Lloyd; trustees, George A. Fisher, F. W. Isenbarth, A. D. Seymour; regatta committee, George C. Molloy, H. W. Patterson, D. Ed. Dealy; art committee, Harry A. Blevin, Henry Doscher; law committee, John F. Lambden, William P. Jeffreys; entertainment, Benj. B. Badeau, Ed. A. Sanford; nominating committee, J. P. Donovan, E. R. Leaycraft, H. J. Meyer; measurer, Roger M. Haddock.

The Annual Reception and Dance

All of the members of the New Rochelle Y. C. are not web-footed, and the dance committee have arranged for the fourth annual reception and dance on Friday evening, January 15, at 9 o'clock. This will be held at Germania Hall, New Rochelle, and special arrangements have been made by the committee to make it the best dance ever given by the club. As the tickets are limited applications for them should be sent in at once. The committee has worked hard to ensure perfect arrangements, and as the social side of club life is very important this dance should have the support of every member.

The annual meeting will be held at the Hotel Manhattan (probably) on Saturday evening, February 6. Make a note of this date and don't forget it. The annual dinners of the club in the past have been most enjoyable and have brought out a very large attendance. Sometimes, indeed, we have had such a good time that many of us have missed the last train back to New Rochelle. Even in these rare cases we willingly admit that the fun was worth the price.

The harbor has not yet frozen up for the winter, and communication with the Island is still had by Bullock's Gasolene Ferry Company. The service is punctual, however, and no inconvenience is had getting back and forth from the shore station. Drop around to the club the next free Sunday or holiday and see how it looks in winter.

Portland Yacht Club Happenings

Portland Yacht Club's Winter Activities

The annual meeting of the Portland Y. C. will be held on January 13. At this meeting there will be the election of officers and the appointment of the different committees.

Treasurer Hunt has reconsidered his determination not to run for that office in 1915, and now declares he is willing to accept the nomination. An unusual amount of business duties compelled him to make the decision but pressure from his friends has convinced him that he is needed.

Mrs. James Freeman Bush presented the club, at its December meeting, with a telemeter. This instrument was the property of her husband, a member of the club, recently deceased, and was used by him on his schooner yacht Lydia.

The Power Squadron is working upon a new set of by-laws which will receive its first reading at the January meeting.

The first Little Dinner of the winter season was held December 5, the second on the 19th. Both were decided successes, and showed that they had lost none of their popularity since last season. The attendance was far above the average.

The reception to the officers of the club will be held as usual New Year's Eve. This event is one of the "big nights," and this year's arrangements point to one of those better-than-ever affairs.

The entertainment committee, wishing to enlarge the social rooms of the club, have been casting around for some time to find ways and means, and at last have decided to hold a series of assemblies, in the hopes that the financial end would provide enough funds to care for the desired improvements. The first of the series was held at Wilson's Academy of Dancing December 11, and was fairly well attended. As it happens, most of our members are web-footed and do not care particularly for dancing. Anyway the dancing "bug" has not yet infected many of the members of the Portland Y. C.

Looking through the names of members of the Portland Y. C. we find that it has furnished a decided amount of political timber this year. It has a Representative to Congress, a Governor, a Mayor, several State representatives, besides several lesser lights. Then the club can boast an admiral of the United States Navy and an Episcopal Bishop of the State of Maine. As a matter of fact the personnel of the Portland Y. C. could not be better represented by Portland's professional and business men than it is.

Mr. Chester F. Hill's little schooner Traveler left Portland the middle of December for the South. It is Mr. Hill's intention to cruise in Florida waters during the winter and spring and return to Maine next summer.

Mr. Clarence B. Holt has sold his cruiser and purchased another craft named the Ino II.

Commodore R. K. Dyer is to take a Chicago trip early in the year.

Better look in on the Chicago yachtsmen while there, Commodore.

Mr. Gordon C. Cushing has listed a new sloop, the Rosemary.

Mr. W. T. Camp has changed the name of his cruiser from Alouette to Merlin.

Among other new craft reported to the secretary are: Loisan, C. L. Homer; Bostonian, Henry A. Wise Wood; Kermah III, George A. Gould; Helen, Marcus Morton; Cygnus, Eugene La Forest Swan; Billiken, E. J. Starr; Thendara, King Upton.

Harlem Yacht Club Happenings

Harlem Yacht Club News

At the December meeting the nominating committee submitted a list of officers for the ensuing year. This list, under the requirements of the constitution and by-laws, is posted on the club bulletin board until the annual meeting. The flag officers nominated are as follows:

Commodore, F. C. Sullivan; vice-commodore, F. E. Friedrichs; rear-commodore, Dudley Van Holland; treasurer, J. F. Jarchow; financial secretary, George Acker, Jr.; recording secretary, Edw. Schmidt; measurer, John Wimmer; fleet surgeon, Dr. T. A. Martin; trustees (to serve two years), K. F. J. Seifert, Fred. D. Newton, A. E. Pettit.

The annual meeting of the Harlem Y. C. will be held Wednesday evening, January 6, 1915. Reports of officers and committees will be rendered as usual at this meeting. Every club member should be present on that evening.

Attendance at monthly meetings is usually slack, each member thinking that the other fellow will be on hand and everything will go along all right. This is but an indifferent way of looking at one's individual duty to the club and tends to foster a general attitude of negligible interest. Moreover, it is not fair to the officers and committees who are giving up much of their time to the advancement of the club.

There has been considerable discussion during the past few weeks on the desirability of establishing a junior membership in the club. It is possible that a resolution towards that end may be proposed at the next meeting. Those in favor of the proposition, and there are many, declare that a junior membership, with moderate annual dues, would bring in a lot of promising material that in a few years will prove valuable to the organization. This is very true. There are many young fellows under twenty-one years of age who are fond of the water who own boats and are good sailors. To join a club of recognized standing is often out of the question, as the initiation fees and annual dues are beyond their financial resources. If their fathers are not interested in sailing, and, consequently, are not associated with a yachting organization, these youths are forced to join unrecognized clubs or leave their craft to the tender mercies of a boat house of the hire-a-boat-by-the-day variety. Eventually, of course, they will rise out of this class, but in the meantime they may lose much of their youthful interest and enthusiasm, and standard yachting organizations lose a valuable asset.

What every yacht club needs constantly is new blood. To obtain this there is no better way than to help the younger generation find a fitting place in the club. Rules could be established regarding house privileges, etc., that would regulate the situation as it should be. If such a departure is made by this club it is promised by those interested that the junior membership will be a success from the start. Of course, only those applicants that are well recommended would be considered, but it is certain that there are many young fellows of the right sort that could be added to the roster of the club and who in time would prove of inestimable value.

It was with sincere regret that the nominating committee received John Crowley's declination to serve on the Board of Directors for another term, owing to demands of business.

Dick Coleman chuckles that if a junior membership is established Richard Coleman, Jr., aged three months, is going to be number one on the waiting list.

The Boots and Saddle Division has already proved a success, and the members can be seen, fair weather or foul, riding Saturdays and Sundays. One Sunday recently, a day of half a gale and a driving rain, they tucked hazardous channels of Central Park. Ordinarily, however, they go out in three reefs, and with storm jibs tacked to windward through the under full sail. It has been remarked that several able, deep-bodied craft are showing finer lines since taking to the sport.

Prizes for the series of Bay races were distributed last week, and following the traditions of the club were well selected and of considerable value.

The club house at City Island is a cozy den these winter months. Well-heated, and with the usual good service of the club, there is always sure to be a gathering on Sundays and holidays of those who find the winter quarters as "companionable" and comfortable as in the softer summer months. Cards, "Kelly," good fellows, and satisfying "boat chat," assure as enjoyable a day as anyone who goes down to the sea in ships could wish.

The Annual Dance

The principal topic among club members is the annual dance and dinner on Lincoln's Birthday Eve, February 11, at the Hotel Astor. Tickets are now ready and will be mailed to those desiring them. The advance demand indicates that the affair will be a great success. Many members who have not attended a club dance for years are anxious to secure tickets and arrange for tables to be reserved, so that they may be able to have their friends well taken care of. Tables will accommodate parties of six and eight. Those who wish to secure reserved places for themselves and friends at the dinner must communicate with the entertainment committee in advance. Reservations will only be made in this way.

Dancing will begin about 9 o'clock, and the dinner is scheduled for midnight. Tickets, including all charges and refreshments, are $3.50 per person.

Mr. "Bill" Rice, the oldest inhabitant of City Island, quavers that the best thing about a New Year's resolution is that it's busted New Year's Eve.

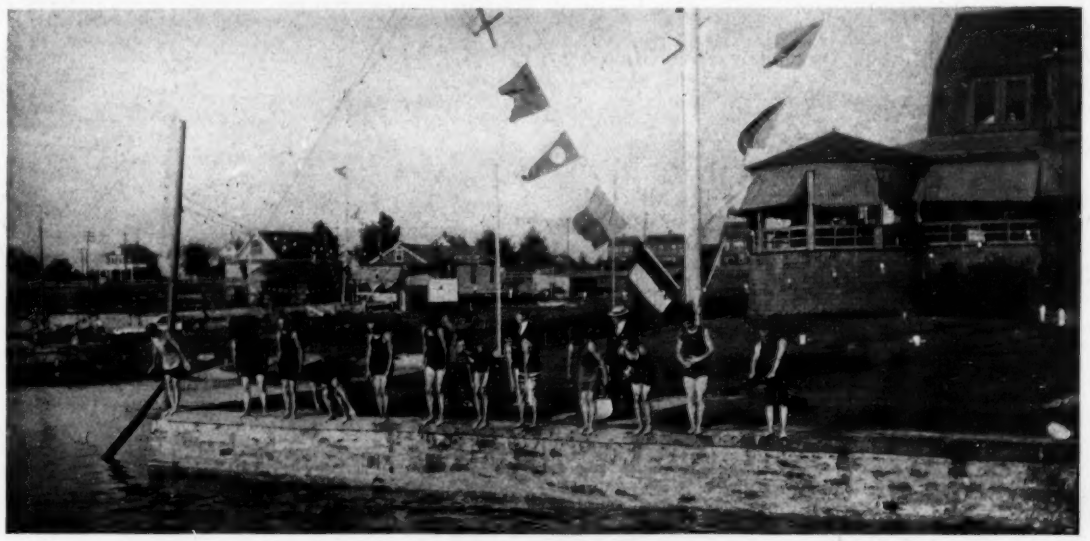
Anent the time-honored custom of turning over a new leaf, boat owners will be heard to state conscientiously (up to about May 1) that their craft do take in a little water, about a bucket a week, say.

John Lalor says he is going to give up smoking.

George L. Bergen announces that he is driving the water wagon and is strapped to the seat.

Robert E. Carew says he'll give up smoking, and, yes, if it comes to that, drinking, but he'll be darned if he gives up wearing his wrist-watch.

"Joe" Fegan says he gave up to the Red Cross Fund, and he'll be blamed if he gives up anything else, New Year's or no New Year's.



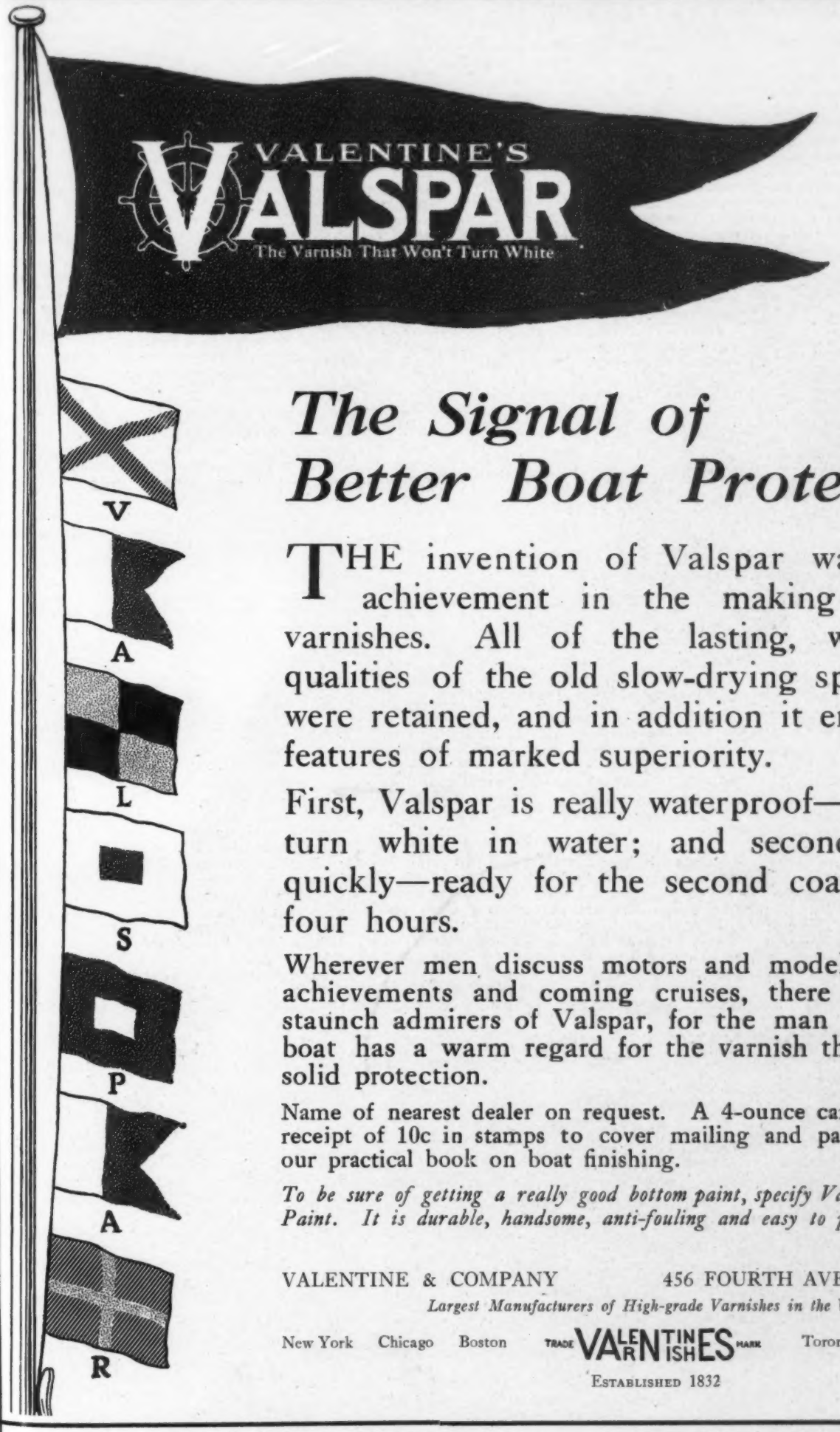
DO ANY OF THE HARLEM Y. C. MEMBERS RECOGNIZE THEIR FRIENDS IN THESE COSTUMES? N. B.—THE PICTURE WAS NOT TAKEN LAST SUNDAY

George Thomas says the camel has nothing on him. "If the camel goes seven days," he meditated, "I'll go eight. Of course, I could go more, but I don't want to make a poor dumb beast feel badly."

"I don't believe there's no sich a animile," doubts Mr. "Bill" Rice, City Island's oldest inhabitant. "It's agin nature to go seven days without a drink. I ain't had one since yesterday, and I can tell you I'm a-feelin' of it!"

Talking about New Year resolutions, "Rudy" Weiscker and "Joe" Lyons, whose soft shoe dance was favorably reviewed in these columns, have given up the stage. "Joe" says soft pedal buck and wing isn't as soft as it's cracked up to be, and, besides, acting takes up a lot of your nights.

Those members who do not see this page regularly can do so by communicating with Secretary Edw. Schmidt, or YACHTING, 141 West Thirty-sixth Street, New York City.



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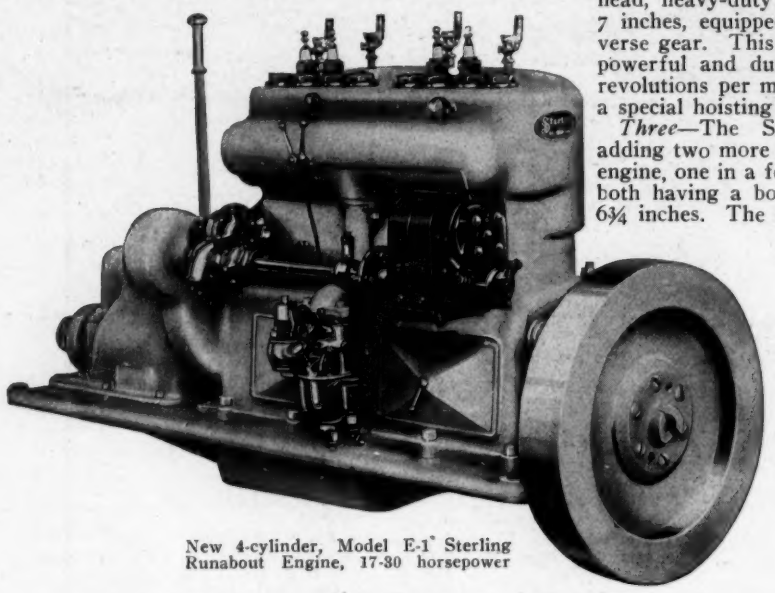
Of Interest to the Skipper

The New Sterling Catalogue and Engines

The Sterling catalogue for 1915 has just been received, and it forms one of the most interesting and attractive bits of marine engine literature that has ever come into this editorial office. The catalogue is not only handsomely printed and beautifully illustrated, but contains all the information regarding various Sterling models in convenient and concise form, so that all the facts one wants regarding any Sterling engine can be had without going through the entire catalogue to find them.

The Sterling Company is introducing several new models this year, a description of which will be found below, and they are all described minutely in the catalogue. Among the most attractive illustrations in the catalogue are those of Sterling-powered boats that have made records during the year, either in the speed boat class or as cruisers, some of the craft being Baby Speed Demon II, the 1914 champion; Ankle Deep, Eleanore and Fad.



New 4-cylinder, Model E-1 Sterling Runabout Engine, 17-30 horsepower

The Sterling Engine Company have notified their sales organization that on and after January 1 they will be in a position to accept orders for the following new engines:

One—A four-cylinder en bloc motor, 3¾ inches x 5½ inches, "L" head, designed especially for runabouts from 20 to 28 feet in length. This new engine will have the same general appearance as the famous "Sterling Kid," and is a remarkably compact and neat motor. Its long stroke materially adds to the power and even running qualities of the new engine; in fact, even at speeds of 1,200 revolutions per minute and over it is impossible to notice any appreciable vibration. The entire oiling system of the engine is enclosed and automatic; in fact, the motor is so constructed that not a moving part, with the exception of the fly-wheel, can be seen, thus making the motor silent and clean.

Two—Owing to a distinct demand on the part of fishermen on both the Atlantic and Pacific Coasts for a really high-grade, efficient and medium-priced four-cycle engine, the Sterling Engine Company are building a two-cylinder "L" head, heavy-duty motor, bore 5½ inches, stroke 7 inches, equipped with an especially strong reverse gear. This motor will be very economical, powerful and durable and will be rated at 400 revolutions per minute. It is so constructed that a special hoisting attachment can be supplied.

Three—The Sterling Engine Company are adding two more motors to their line of Model B engine, one in a four-cylinder and the other a six, both having a bore of 5½ inches and stroke of 6¾ inches. The new motors will be rated at 600 and 1,000 revolutions per minute. The same features of design that have made the previous Model B so popular have been followed out in these new engines, but a longer stroke has been provided, because a greater efficiency is thereby obtained. In these two new motors the Sterling Engine Company say that they feel that they are offering the very last word in design and construction of medium-duty and speed marine engine.

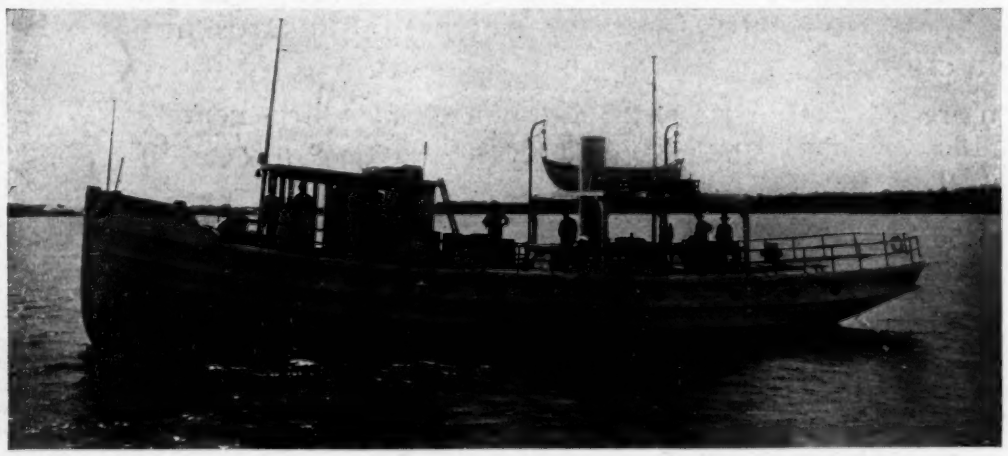
Some Evinrude Improvements

The Evinrude Company, makers of the Evinrude Detachable Rowboat Motor, have brought forth each year a new and desirable improvement to its already successful motor. Last year it was the built-in magneto and this year it is the automatic reverse. These features are guaranteed by the Evinrude Company to be absolutely dependable.

The magneto is a much appreciated feature, and while the Evinrude Company will still supply battery ignition at a smaller cost, if desired, 98 per cent of their orders specify the built-in magneto. The Maxim silencer is also a part of every standard machine, and is also an exclusive feature.

This year the Evinrude Company annnounces as its major improvement the automatic reverse. With this feature last year's model becomes 100 per cent more flexible and the "safety first" idea is fully covered. The automatic reverse adds comfort, security and confidence. In navigating difficult passages, maneuvering in crowded waters, in landing on the shore or at a dock, or avoiding collisions, the automatic reverse is instantaneous and dependable in its action. The pleasures of "Evinruding" are increased by it a hundred fold.

In the design of this new feature the company has shown consideration for its patrons by so standardizing the parts of the automatic reversing feature that the owners of earlier models can, for a few dollars, transform the machines they now own into the up-to-the-minute model. This is service, a business principle which the buyer of machinery cannot fail to appreciate.



Eleanor, an 80-Foot Passenger and Freight Vessel, of Westlake, La. Equipped with a 110-Horsepower Wolverine Engine

The Adventurer's Corner

(*Continued from page* 18)

"I sat a moment nonplussed; there was nothing more I could think of to do. Obdurate and secretive, Paradox sat there gloating over me, apparently in perfect running order yet utterly refusing to come to the rescue. I glanced ashore again, and mentally gave myself ten minutes of grace. Then I lit my pipe. If anything was to be done it must be calmly and reasonably, not in frenzy.

"Despite me, my mind started flying off at tangents. With no purpose whatever I suddenly found myself impelled to take off the cylinder head. While I worked feverishly unscrewing the cap nuts it began to dawn upon me that I had overlooked something heretofore, but not until I had the head off and saw the sooted contact tip of the sparking mechanism within the cylinder did I fully realize what had happened.

"With the cold sweat bursting over me I delved into the tool kit and fished out a scrap of emery paper. The closeness of a race will unnerve where hopelessness does not. My fingers trembled so I could scarcely find the spark tips. I stopped work a moment, shut my eyes to hide that hideous surf and fought to regain the mastery.

"Strangely enough, the attack of nerves passed as suddenly as it had come, and it left me able to work more deftly than before. In a jiffy I had polished both spark contacts, clapped on the cylinder head and screwed down three out of the six nuts which normally held it in place. It was taking a chance—but seconds meant life.

"I primed the engine; hurled myself on the fly-wheel; and having hold at last of something I could use brute force upon, I spun it as it had never been spun before. Twice around she only gasped, but the third time Paradox responded with a kick that sent me sprawling into the stern sheets. I jammed the helm hard over and crouched there, scarcely daring to listen as each explosion told that the engine was still running. She missed once, and my heart was in my mouth; then a few kicks more and away she went, with the strong, regular 'chug-chug' which I had already grown to depend upon. Suddenly my knees gave away, and I dropped onto a 'thwart and watched the clear, green water widen between me and the shore."

The geologist paused to refill his pipe, which had long since gone out.

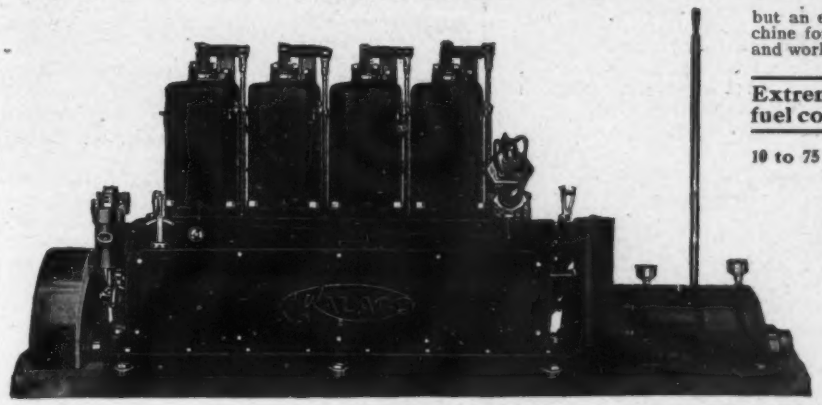
"The rest of my story," he observed, "is in the nature of an anti-climax. Suffice it for the present to say that I found a harbor of refuge just beyond the next headland, and lay there for days—or rather the boat did—while the work of collecting specimens was in progress. Eventually after still more vicissitudes, I got passage back to civilization upon a whaler. The moral of my story, however, if it has one, is to show the folly of a scientist's 'butting in' on another man's profession, especially when that has to do with the sea."

A Small Single-Hand Auxiliary

(*Continued from page* 34)

wheel would be considerably above the floor line. To obviate this it was decided to run the shaft underneath the floor and connect the end of the Morse silent chain with a two-cylinder engine which was placed forward of the saloon, well over on the port side.

NOT AN ENGINE FOR EVERY BOAT



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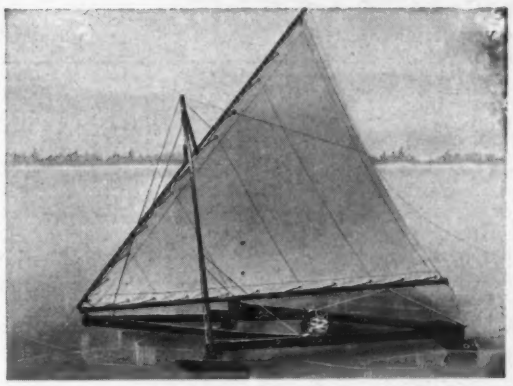
ICE-BOATS



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See Article Page 33, this Issue of Yachting

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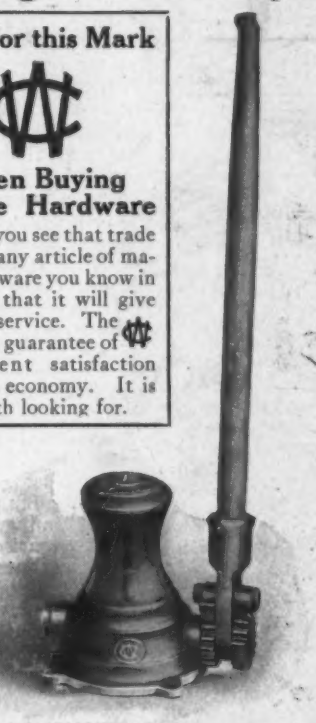

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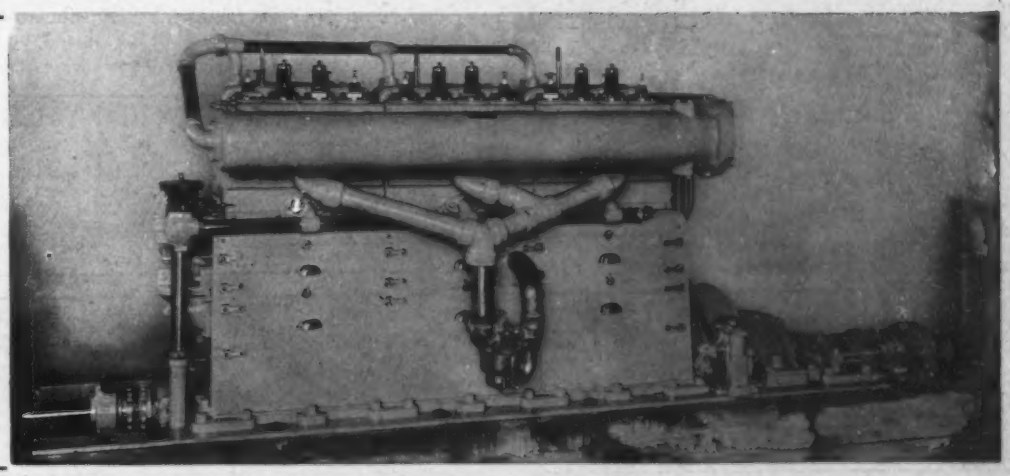
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